MINOLTA

QMS

The essentials of imaging

2060 Print System Service Manual

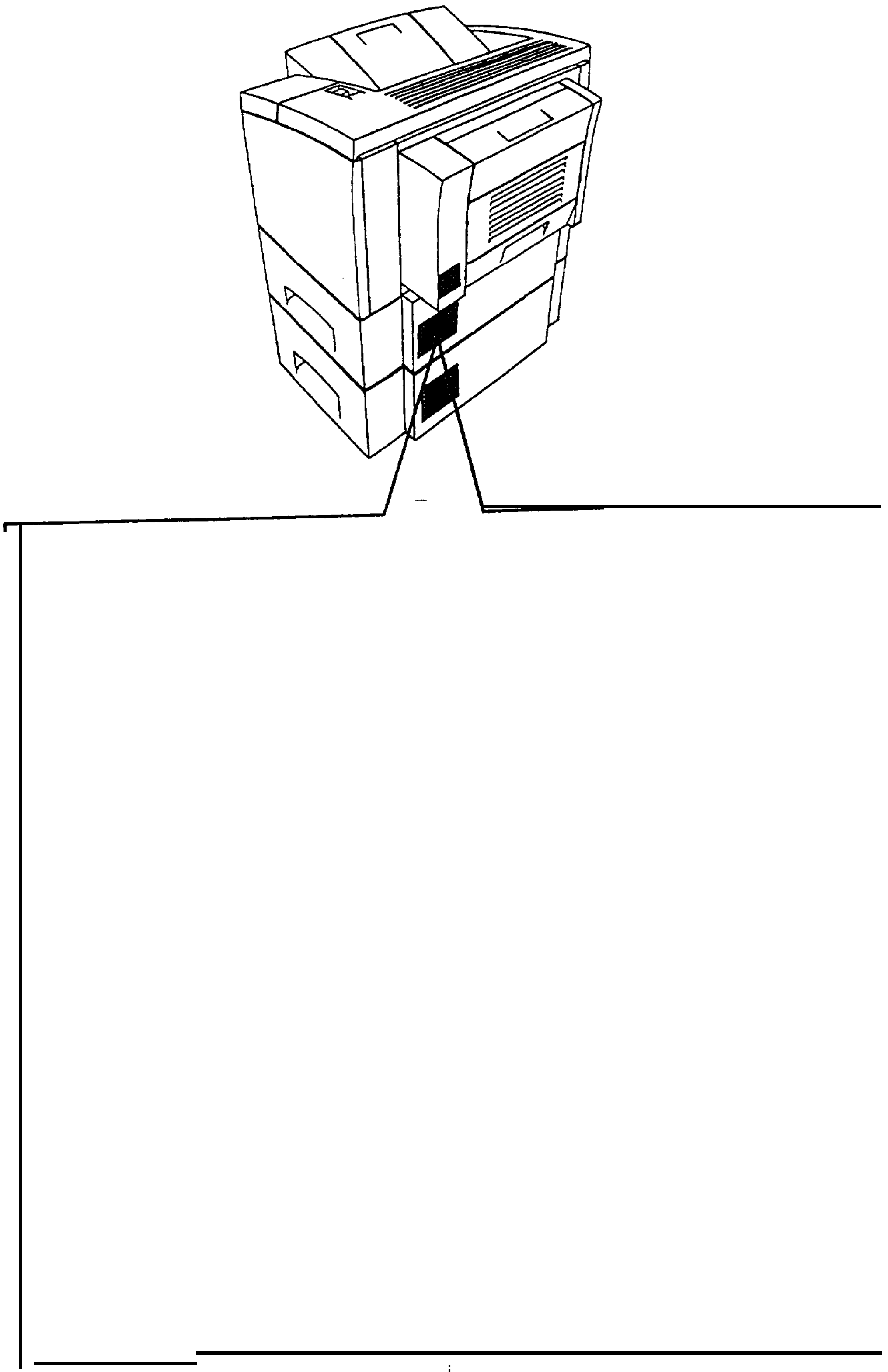
1750054-001A

SP-A310

Service & Parts Manual

September 1996
Revision C-02

WARNING LABELS



SAFETY INFORMATION

ALL Areas

INTERNAL LASER RADIATION

Maximum radiation power: 8.8 x 10^{4} (W)
Wavelength: 770-8 10 nm

This is a Class IIIb Laser Diode Assy. that has an invisible Laser Beam. The Print Head Unit is NOT A FIELD SERVICE ITEM. Therefore, the Print Head Unit should not be opened under any circumstances.

U.S.A. Only

LASER SAFETY

This LBP printer is certified as a Class 1 laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Food, Drug and Cosmetic Act of 1990. This means that the LBP printer does not produce hazardous laser radiation.

Since radiation emitted inside the LBP printer is completely confined within protective housing and external covers, the laser beam cannot escape from the LBP printer during any phase of user operation.

CDRH REGULATIONS

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States. The label shown in the figure indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States-.

CLASSIFICATION OF THE LASER PRODUCT

This product is classified as a Class 1 Laser Product under the CDRH Regulations U.S.A..

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Discard used batteries according to manufacture's instructions.

Denmark Only

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskifining må kun ske med batteri af samme fabrikat og type.
Lever det brugte batter-i tilbage til leverandøren.

Norway Only

ADVARSEL

Lithiumbatteri-Eksplosjonsfare.
Ved utskifting benyttes kun batter-i som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

Sweden Only

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batter-i enligt fabrikantens instruktion.

VARNING!

Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad.
Behakta ej strålen.

Finland Only

VAROITUS

Pristo voi räjähtää jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

VARO!

Avattaessa ja suojalulcitus ohitettasessa olet alttiina näkymättömälle lasersäteilylle.
Älä katso säteeseen.

New Zealand Only

Warning

"Immediately disconnect the equipment should it become physically damaged, and arrange for its disposal or repair before reconnecting."

"Disconnect the Telecom Network connection before disconnecting the Power connection prior to relocating the equipment, and reconnect the Poker first."

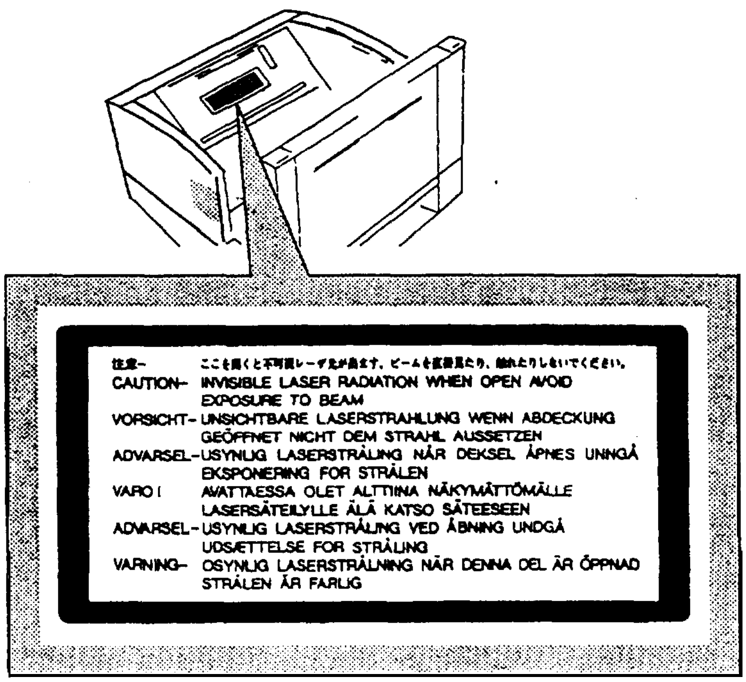
User Instruction (For all users)

The outlet should be located near the printer and should be easily accessible.

Please read the following for your own protection.

⚠ Caution

Opening the cover indicated by the **Caution** label below may expose you to harmful laser radiation which could cause damage or loss of eyesight. Do **not Open the Cover** when the power is on.



PRECAUTIONS

(1) Precautions

Refer to D: DISASSEMBLY/ CLEANING for the Disassembly procedure.

Be sure to unplug the printer before disassembling and cleaning. ⚠ Caution

1. When unplugging connectors on the P.W.B.s themselves, always make sure the power is OFF first.
2. Always unplug connectors by holding the connector housing. Pulling on the power cord can lead to problems with poor contact.
3. It is recommended that a body ground not be used when carrying out any trouble-shooting procedure. Be sure to ground DC lines to a ground test point on the P.W.B.

(2) At Replacement/ Adjustment/ Cleaning ⚠ Caution

1. Be sure to handle the Fusing Unit carefully as the unit is still hot for a while after the printer is stopped.
2. Do not disassemble the Imaging Cartridge or the Print Head Unit
3. Use only a Fuse of the indicated rating.

(3) During Operation ⚠ Caution

1. Keep your hands. clothing, etc. well away from operating or rotating parts.
2. Never touch the terminals of electrical parts or high voltage parts.
3. This printer is using an invisible laser beam. To prevent a laser beam leak, the printer makes a trial run to be sure the covers are in position.

HANDLING THE P.W.B.

Observe the following precautions when handling a P.W.B. with ICs.

(1) During Transportation/ Storage

1. During transport and storage, P.W.B.s should be kept in conductive bags or on mats and not taken out unless absolutely necessary.
2. P.W.B.s should be stored in a place where direct sunlight does not strike them.
3. Do not touch IC terminals with your hands.

(2) At Replacement

1. Before removing connectors from a P.W.B., make sure the printer has been unplugged.
2. When P.W.B.s are taken out of their conductive bags or off their mats, hold them by their edges to avoid touching the terminals or the patterned surfaces.
3. Before installing connectors on a P.W.B., make sure the printer has been unplugged.

(3) At Inspection

1. Avoid checking a P.WB. with testers; instead, use operating parts of the printer, indicator lamps, and other means to evaluate operational conditions.
2. Be careful not to short-circuit IC terminals when using metal instruments or screws.
3. If it is necessary to touch elements on the P.W.B. with your hand, make sure your body is properly grounded.

CONTENTS

A: PRODUCT INSTALLATION

B: GENERAL INFORMATION

C: MECHANICAL/ ELECTRICAL

D: DISASSEMBLY/ CLEANING

E: ADJUSTMENT

F: TROUBLE-SHOOTING

A

A: PRODUCT INSTALLATION

1. PRECAUTION FOR INSTALLATION

I-l. Installation Site

When installing the printer, please avoid the types of locations listed below, both for safety considerations and to avoid breakdowns.

- **Which is exposed to direct sunlight.**
- **Which is damp or dusty.**
- **Where it may be splashed with water.**
- **Which is tilted or subject to undue vibratlon.**
- **Where it will be subject to extremely high or low temperature or humidity.**
- **Where it will be subject to sudden fluctuations In either temperature or humidlty.**
- **Which is near volatile flammables or corrosive gas**
- **Which is in the dlrect air stream of an air conditioner, heater, or ventilator.**
- **Which Is near a TV set or radio.**

1-2. Environmental Requirements

In order to make sure the printer functions in good condition, please make sure the ambient environment satisfies the following requirements:

Temperature	10 to 35°C	Temperature fluctuation ±10°C per hour or less
Humidity	15 to 85% RH	Humidity fluctuation of ±20% RH per hour or less
Height	o-2500m	Atmospheric pressur760 hPa or more

1-3. Power Requirements

Do not plug the Power Cord into a power outlet via an extension cord supplying electricity to more than one unit.

Power	120v 60Hz	220V - 240V 50Hz
Voltage fluctuaticm	±10%	
Frequency fluctuation	±3Hz	

When any other electric appliance is sourced from the same power outlet make sure that the current capacity of the outlet is not exceeded.

- Ensure that the power outlet is not hidden behind any object, allowing the user to immediately unplug the power cord when necessary.
- The power cord should not be cracked or scratched.

2. INSTALLATION

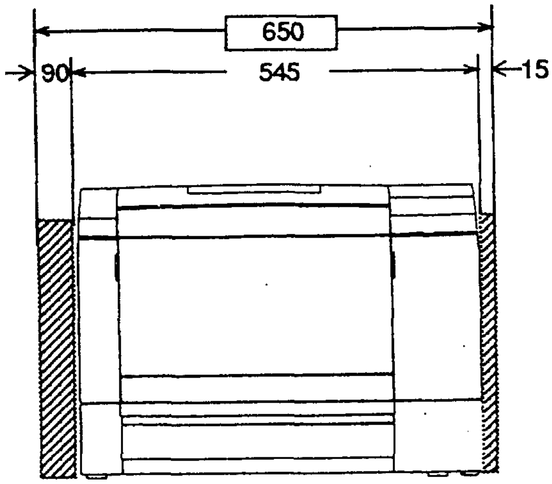
2-1. Connection

The following items should be connected before use.

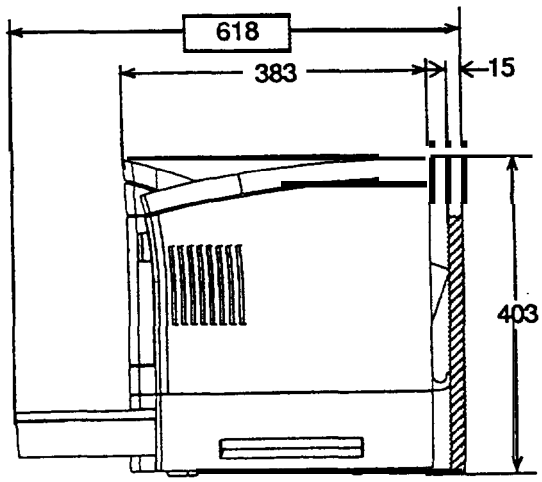
- Connect the Interface Cable.
- Connect the Power Cord

2-2. Space Requirements

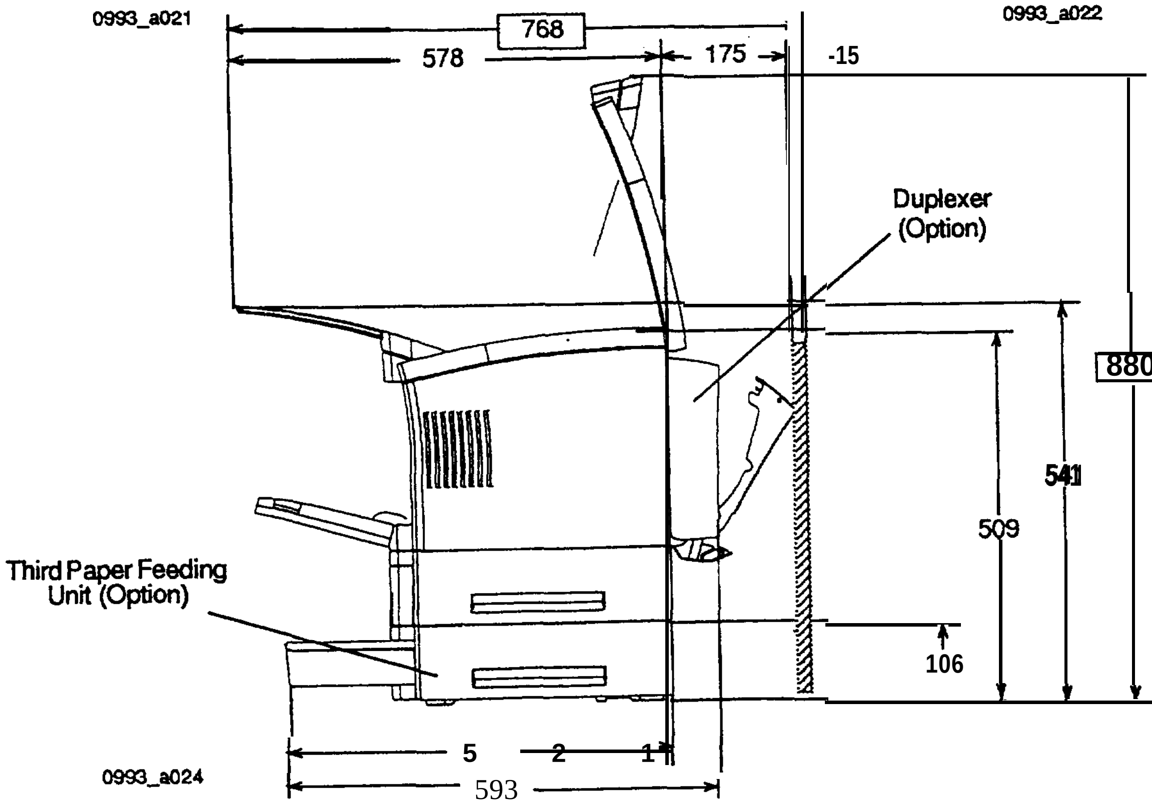
Note: The Minimum Space requirements for installation of the printer are enclosed in a ☐ To ensure easy operation, replacement of consumable, and maintenance service jobs, provide the following space for the installation of the printer.



0993_a021



0993_a022



0993_a024

Unit: mm

B

B: GENERAL INFORMATION

1. SPECIFICATIONS

Type	: Desktop Laser Beam Printer
Printing system	: Electrostatic dry powdered imaging system Imaging Cartridge
Exposure system	: Laser Diode + Polygon Mirror scanning
Print density	: 600 dpi
Print Image	: Single print: within 5 mm of paper edge, Multi print: within 7.5 mm of paper edge
Printing time	: Single print 16 sec/ A4 C Duplex print 26 sec/ A4 C
Multi printing time	: Single print 20 sheets/ min/ A4 C Duplex print 12.5 pages/ min/ A4 C
Paper size	: Multi-purpose Tray 92 - 330 mm (W) x 140 - 483 mm (L) A3, A4, A5, B4, B5, Letter, Super B size OHP, Transparency, Letterhead, Postcard, Label Thick Paper (91 - 157g/m²) : 250 Sheet Cassette 210 - 297 mm (W) x 148 - 432 mm (L) A3 L, A4 L/C, A5 C, B4 L, B5 C, Letter L/C
Paper	: Ordinary Plain Paper (60-90 g/m²), Recycled Paper (60-90 g/m²)
Paper Feeding system	: 2 way system 1st Multi-purpose Tray (150 sheets maximum) 2nd Universal Cassette (250 sheets maximum)
Paper Exit system	: Face down (500 sheets maximum/ A4 C)
Warm-up time	: Within 70 seconds/ (when power supplied at 23°C)
System speed	: 93.8 mm/ sec.
Fusing system.	: Heat Roller fusing system
Charging system	: Rotating Charge Brush system
Development	: Fine Micro Toning system
Drum deaning'	: Cleaning Blade
Separating system	: Paper Separator
image Transfer system	: Roller Transfer system
Dimensions	: 545 mm (W) x 383 mm (D) x 403 mm (H) Without Paper Cassette
Weight	: Approx. 24 kg (Without Imaging Cartridge 1.9 kg. Controller 0.5 kg)
Power supply	: AC 120V 60Hz, 220V - 240V 50/60Hz
Power Consumption	: 750 w or less (Operation)/ 120V 200 w or less (Standby)/ 120v 30 w or less (low power)/ 120v
Acoustic Noise	: 53 dB (A) or less (Operation)/ standard type 38 dB (A) or less (Standby)
Monthly Duty Cycle	: 50,000 prints
I. Cartridge operating life	: 10,000 prints or more (when the black-to-white ratio is 5% on multi prints) There is toner empty detection.
Exit Gasses	: Ozone 0.04 mg/m³ (0.02 ppm or less) Dust 0.25 mg/m³ or less NO_2 5 ppm or less
: Accessories	: Power cord Imaging Cartridge 250 Sheet Cassette (A3/ Super B)

: Options	: 500 Sheet Third Cassette unit
	250 Sheet Third Cassette Unit
	500 Sheet Cassette (A4/ Letter)
	250 Sheet Cassette (A3/ Super B)
	Duplex Unit

: 250 Sheet Cassette

Paper	: Ordinary Plain Paper/ Recycled Paper (60-90 g/m^2)
Paper size	: 210 - 297 mm (width) x 148 - 432 mm (length)
	A3 L, A4 WC. A5 C. B4 C. B5 C, Letter L/C (L: lengthwise. C: crosswise)
Paper Feeding system	: Paper finger system. 250 sheets

: 500 Sheet Cassette

Paper	: Ordinary Plain Paper/ Recycled Paper (60-90 g/m^2)
Paper size	: A4 C or Letter C (L: lengthwise, C: crosswise)
Paper Feeding system	: Paper finger system, 500 sheets

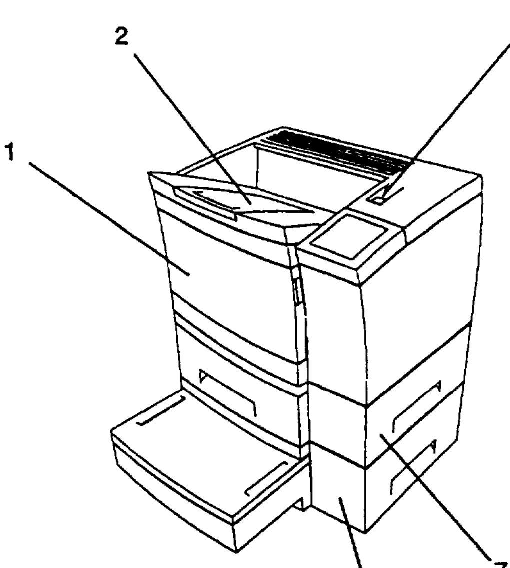
: Third Cassette Unit

Paper	: Ordinary Plain Paper/ Recycled Paper (60-90 g/m^2)
Paper size	: A3 L, B4 L, A4 L/C, B5 C, A5 C, Letter L/C
Paper Feeding	: 250 sheet Cassette (250 sheets maximum)
Detecting Paper	: Paper empty: 0 sheet
	Paper near-empty 1: 50 sheets or less. Paper near-empty 2: 250 sheets
System speed	: 95.6 mm/ sec.
Power supply	: 5V - 0.1A/ 24V - 0.3A maximum (Supplied from printer.)
Dimensions	: 545mm (W) x 377mm (D) x 106mm (H)
Weight	: Approx. 5.4 kg (Third Cassette Unit 3.3 kg + 250 Sheet Cassette 2.1 kg)
Third C. Unit operating life	: 240,000 sheets or 5 years

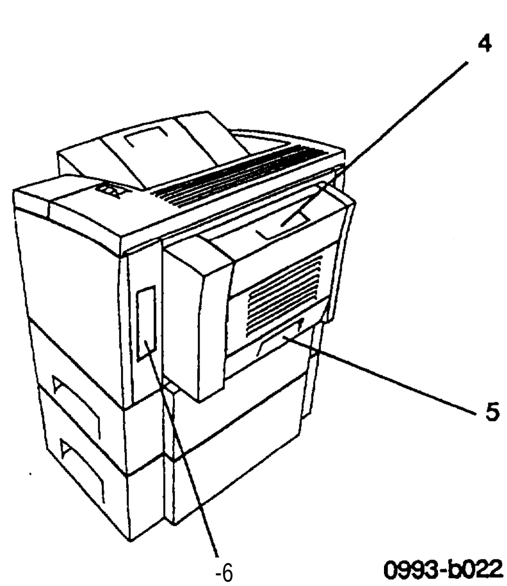
: Duplex Unit

Paper	: Ordinary Plain Paper/ Recycled Paper (64-90 g/m^2)
Paper size	: A3 L, B4 L, A4 L/C, B5 C, A5 C, Letter L/C
System speed	: 95.7 mm/ sec.
Power supply	: 5V - 0.3A/ 24V - 1.0A maximum (Supplied from printer.)
Dimensions	: 424mm (W) x 71mm (D) x 244mm (H)
Weight	: Approx. 2.1 kg
Duplex Unit operating life	: 150,000 sheets or 5 years

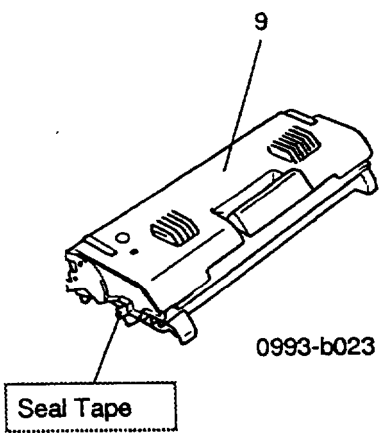
2. PARTS IDENTIFICATION



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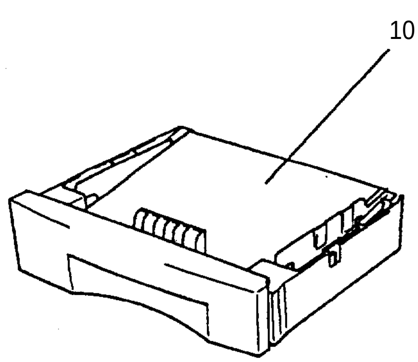


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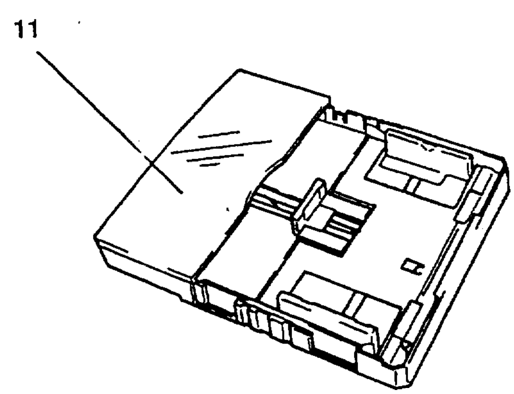


0993-b023

1. Paper Feed Tray
2. Paper Exit Tray
3. Upper Unit Lock Release Lever
4. Duplex Unit (Option)
5. Duplex Lower Cover
6. Interface Connector
7. Second Cassette Unit
8. Third Cassette Unit (Option)
9. Imaging Cartridge
10. 500 Sheet Letter Cassette (Option)
11. 250 Sheet Cassette

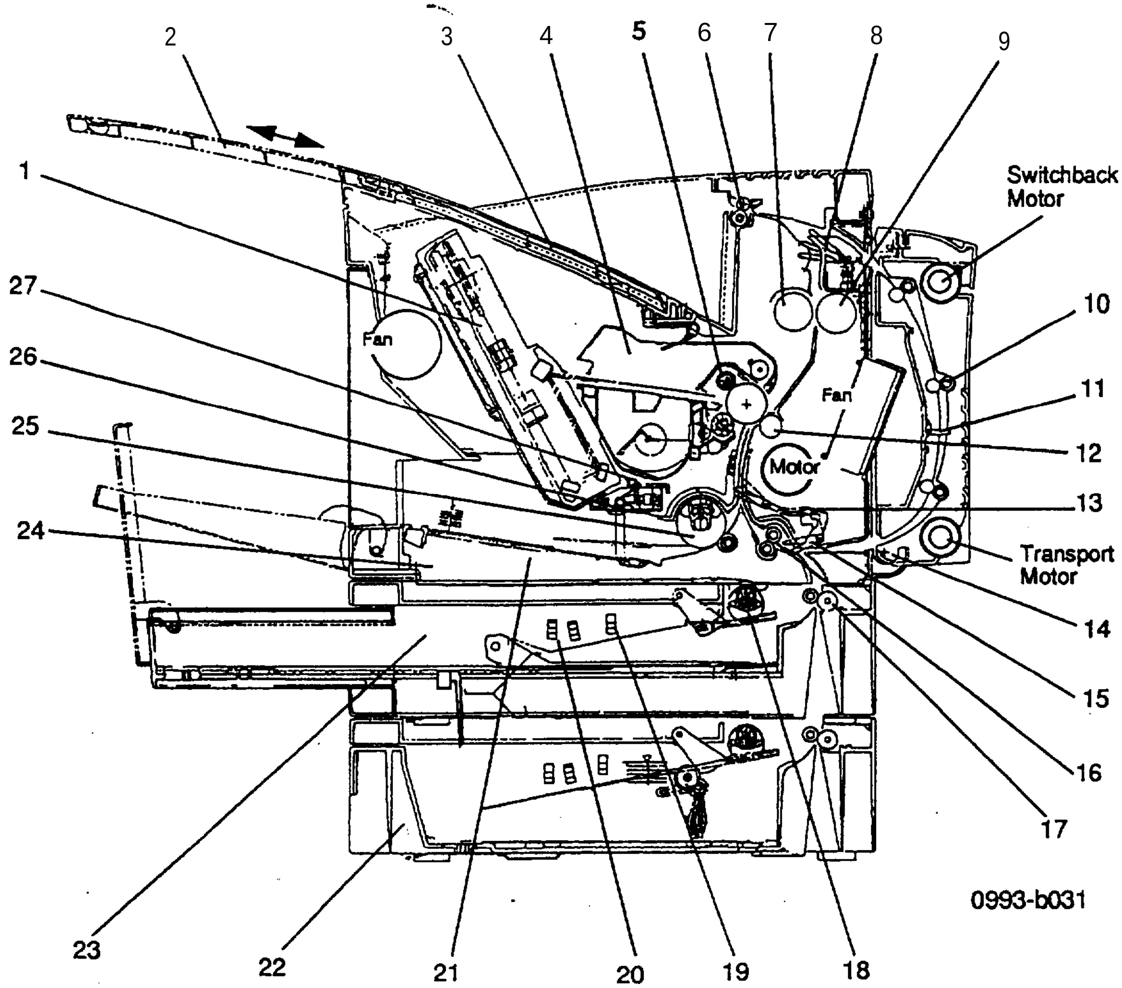


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0993-b025

3. COMPONENT LAYOUT



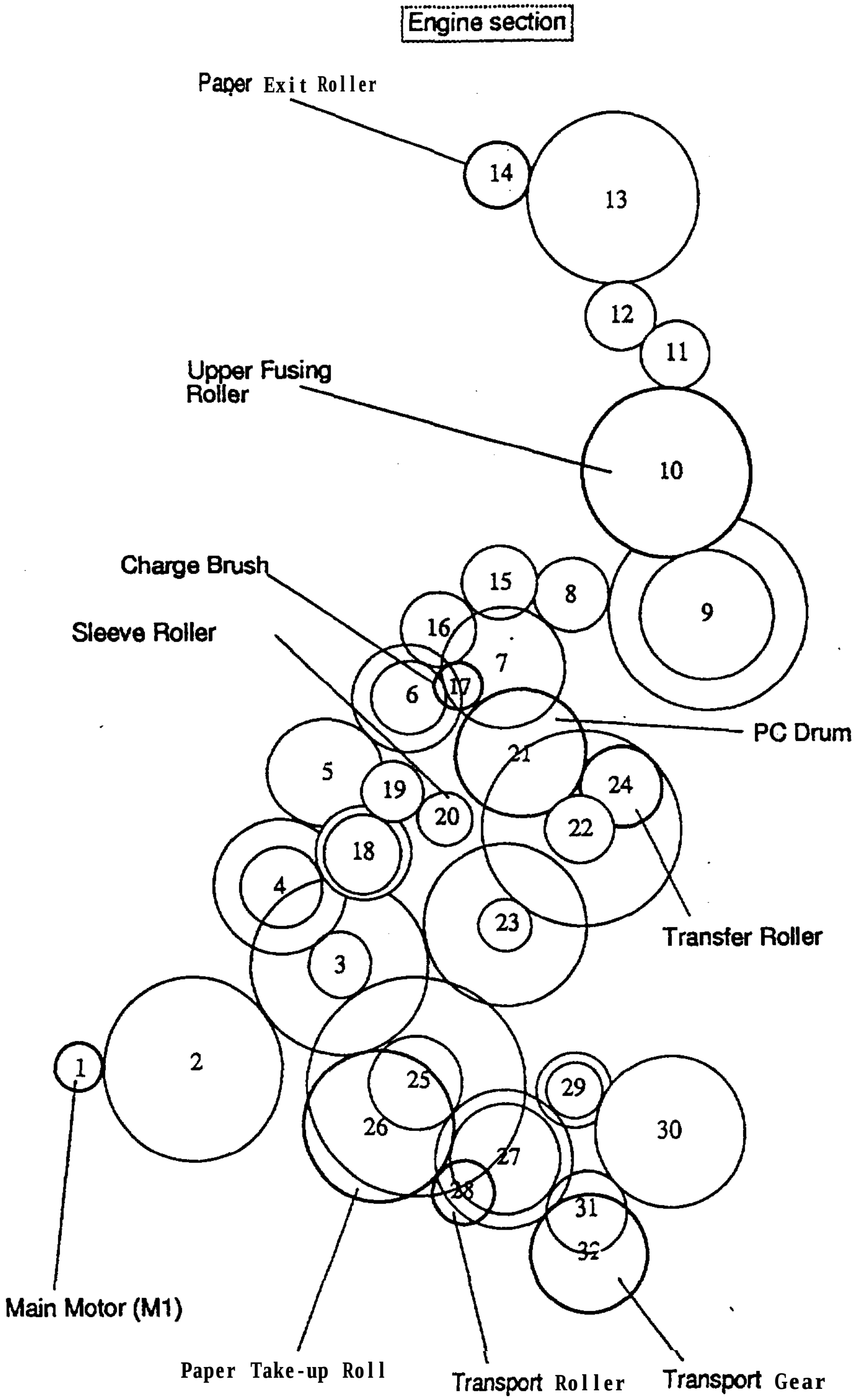
1. Print Head Unit
2. A3 Exit Tray (stored type)
3. Paper Exit Tray
4. Imaging Cartridge
5. Charge Brush
6. Paper Exit Roller
7. Upper Fusing Roller
8. Paper Exit Sensor (PC3)
9. Lower Fusing Roller
10. Duplex Transport Roller (Option)
11. Duplex Paper Sensor (PC4)
12. Image Transfer Roller
13. Paper Take-up Sensor (PC1)
14. Duplex Cover Switch (Option)
15. Registration Sensor (PCR1)
16. Registration Roller
17. 2nd Transport Roller
18. 2nd Paper Take-up Roller
19. 2nd Paper Empty Sensor (PE2)
20. 2nd Paper Near-empty Sensor (PNE2)
21. Paper Lifting Plate
22. 3rd Cassette Unit (Option)
23. 2nd Cassette Unit
24. Multi-purpose Tray
25. Paper Take-up Roll
26. Paper Empty Sensor (PE1)

↓ Paper Near-empty Sensor (PNE1)

27. Toner Empty Sensor (TE1)

4. GEARS/ ROLLERS ASSIGNMENT

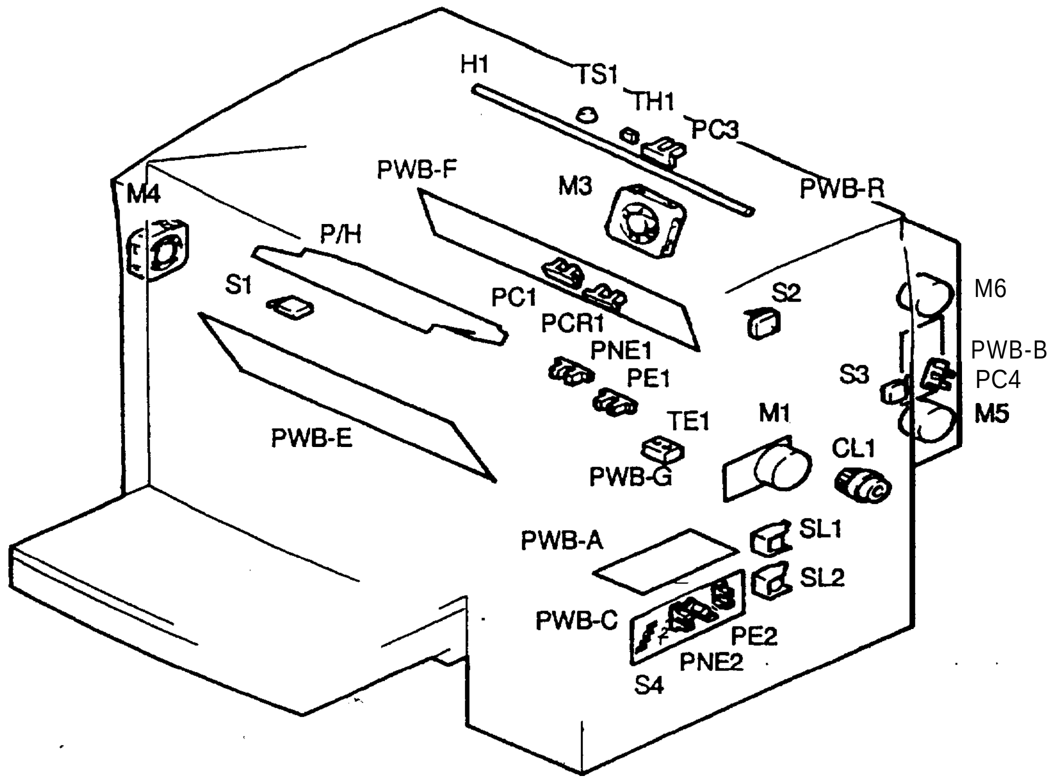
The Main Motor (M1) transmits the drive to the rollers of the printer and the optional 3rd Cassette Unit via each gear. The duplex unit Transport Motor (M5) transmits the drive to rollers of the Duplex Unit.
(Refer to C: MECHANICAL 2-2. 2nd Cassette Unit, 9-2. Duplex Unit.)



Gear Ratios

1.20
2. 77
3. 75
4. 39/18
5.33
6. 31/22
7.38
9. 60/29
10.39
11.15
12. 15
13.39
14.14
15. 18/23
16.24
17.14
18.20
19. 14/17
20.16
21.44
22. 60/23
23. 70/16
24.18
25. 63/27
26. 45/47
27. 44/34
28.18
29. 15/21
30.44
31.25
32. 31/25

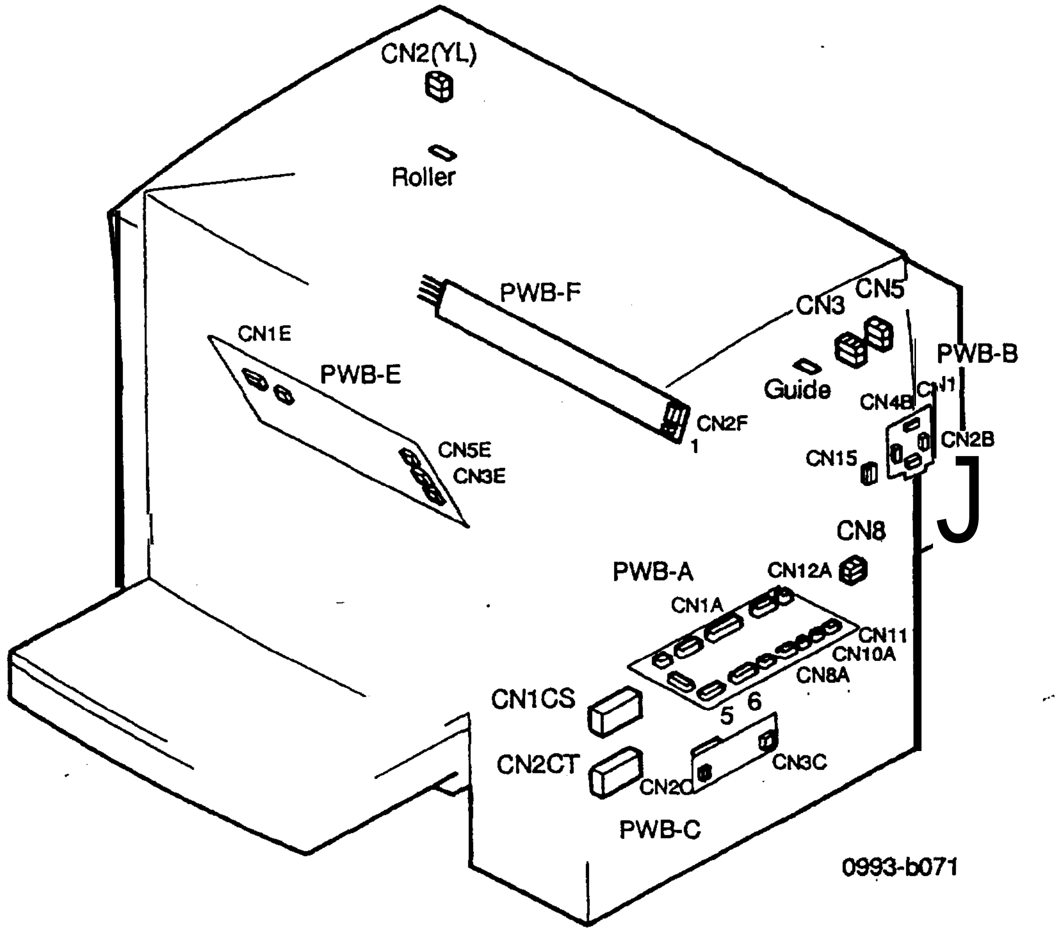
5. ELECTRICAL COMPONENT LAYOUT



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PWB-A	Main control Board	PC1	Paper Take-up Sensor
PWB-C	2nd Cassette Unit Board	PC3	Paper Exit Sensor
PWB-E	Power Unit	PCR1	Registration Sensor
PWB-F	High Voltage Unit	PE1	Paper Empty Sensor
PWB-G	Toner Empty Board	PNE1	Paper Near-empty Sensor
PWB-R	Resistor Board	PE2	2nd Paper Empty Sensor
M1	Main Motor	PNE2	2nd Paper Near-empty Sensor
M3	Fusing Fan Motor	H1	Heater Lamp
M4	Power Fan Motor	TE1	Toner Empty Sensor
SL1	Paper Take-up Solenoid	TH1	Thermistor
SL2	2nd Paper Take-up Solenoid	TS1	Thermostat
CL1	Registration Clutch		**Duplex Unit (Option)**
S1	Power Switch	**PWB-B**	**Duplex Control Board**
s2	Interlock Switch	**M5**	**Transport Motor**
S3	Duplex Cover Switch	**M6**	**Switchback Motor**
S4	2nd Paper Size Switch	**PC4**	**Duplex Paper Sensor**

6. CONNECTORS LAYOUT



PWB-A	Main Control Board
PWB-C	2nd Cassette Unit Board
PWB-E	Power Unit
PWB-F	High Voltage Unit
CN5A	Main Motor
CN2F	Fusing Fan Motor
CN5E	Power Fan Motor
CN2B(PH)	Transport Motor
CN1 B(PH)	Switch back Motor
CN12A	Paper Take-up Solenoid
CN3C	2nd Paper Take-up Solenoid
CN8	Registration Clutch
CN1 E	Power Switch
CN3E	Interlock Switch
CN8A	2nd Paper Size Switch

CN1 OA	Paper Take-up Sensor
CN3	Paper Exit Sensor
CN1 OA	Registration Sensor
CN6A	Paper Empty Sensor
CN3A	Paper Near-empty Sensor
CN8A	2nd Paper Empty Sensor
CN8A	2nd Paper Near-empty Sensor
CN2(YL)	Heater Lamp
CNEA	Toner Empty Sensor
CN5	Thermistor
CN2(YL)	Thermostat

Duplex Unit (Option)

PWB-B	Duplex Control Board
CN4B	Duplex Cover Switch
CN11A	, Duplex Paper Sensor, (CN15)

7. SWITCHES/ SENSORS IDENTIFICATION

: Printer, Duplex Unit.

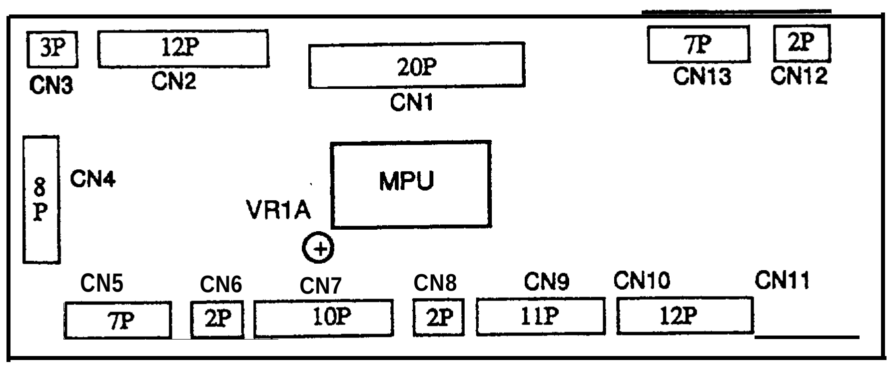
Symbol	Name	Function
S1	Power Switch	Turns power ON and OFF.
S2	Interlock Switch	Detects the opening of Upper Cover. And stops, the element.
S3	Duplex Cover Switch (Option)	Detects the opening of Duplex Cover. And stops, the element.
S4	2nd Paper Size Switch	Detects the paper size of 2nd Cassette Unit.
PC1	Paper Take-up Sensor	Detects the timing of paper feeding. Active: "L"
PC3	Paper Exit Sensor	Detects the paper exit of Fusing Unit Active: "H"
PC4	Duplex Paper Sensor (Option)	Detects paper in Duplex Unit. Active: "L"
PCR1	Registration Sensor	Defects the timing of 2nd Cassette Unit. Duplex Unit: "L"
PE1	Paper Empty Sensor	Detects paper empty condition. Active: "H"
PNE1	Paper Near-empty Sensor	Detects 50 sheets of paper. Active: "H"
PE2	2nd Paper Empty Sensor	Detects paper empty of 2nd Cassette Unit. Active: "H"
PNE2-1	2nd Paper Near-empty Sensor	Detects 50 sheets of paper for 2nd Cassette Unit. Active: "H"
PNE2-2	2nd Paper Near-empty Sensor	Detects 250 sheets of paper for 2nd Cassette Unit Active: "H"
TE1	Toner Empty Sensor	Detects toner empty condition. Active: "L"
TH1	Thermistor	Detects the temperature of Upper Fusing Roller.
TS1	Thermostat	Cuts OFF the current to Heater Lamp when temperature is exceeded.

8. ELECTRICAL SERVICE PARTS ON P.W. BOARDS

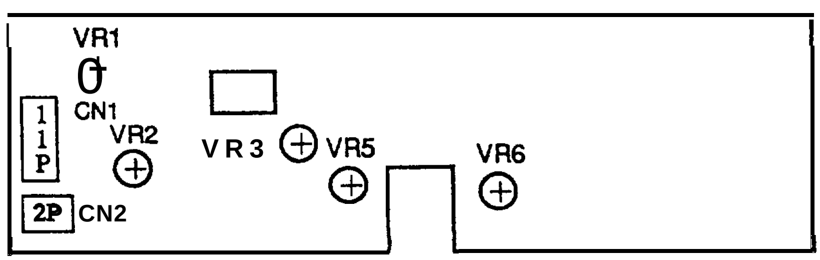
P.W. Boards	Symbol	Function
PWB-A	VR1	Adjusts the Image Registration gap. (Refer to E: Adjustment section.)
PWB-F	VR1-VR6	Factory setting
PWB-E	F1	Fuse (100V) 125V - 5A (230V) 250V - 3.15A
	F2	125V - 12A 250V - 6.3A
	RV1-RV2	Factory setting

Do not touch

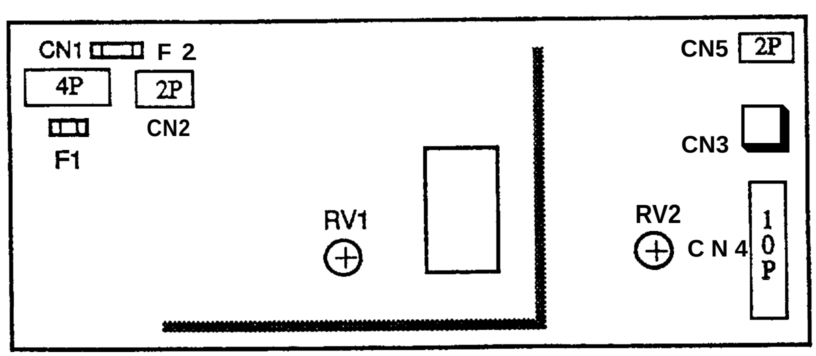
PWB-A



PWB-F



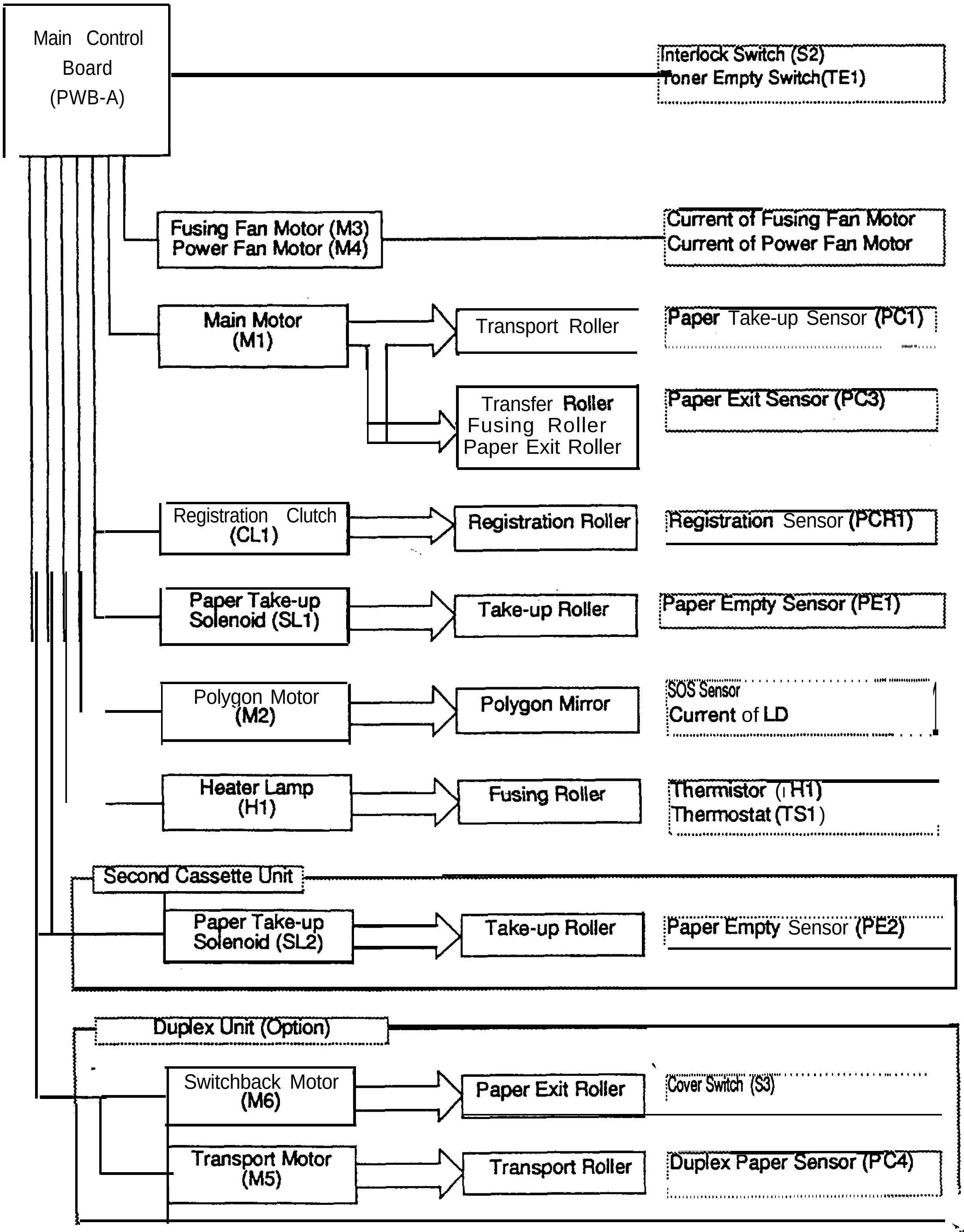
PWB-E



9. SYSTEM LAYOUT

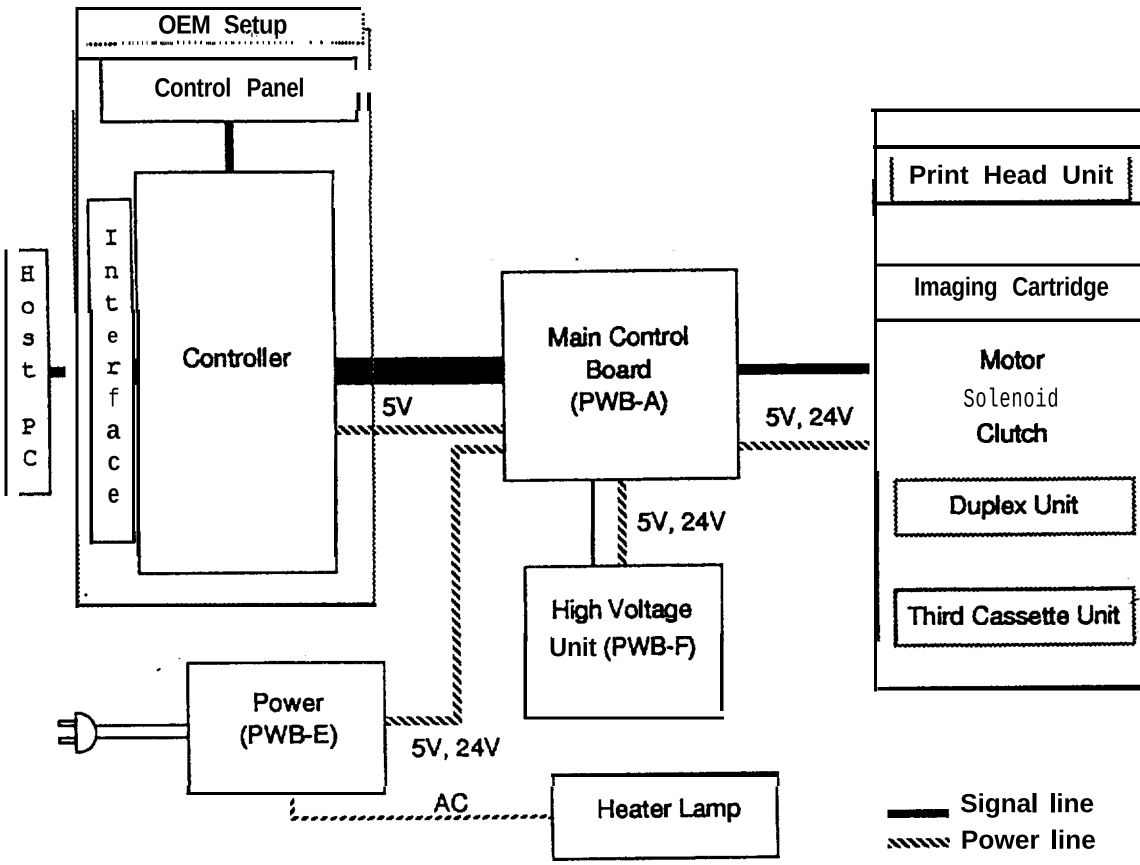
9-1. Drive Section

: Mechanical Control and Sensor Layout



9-2. Electrical Section

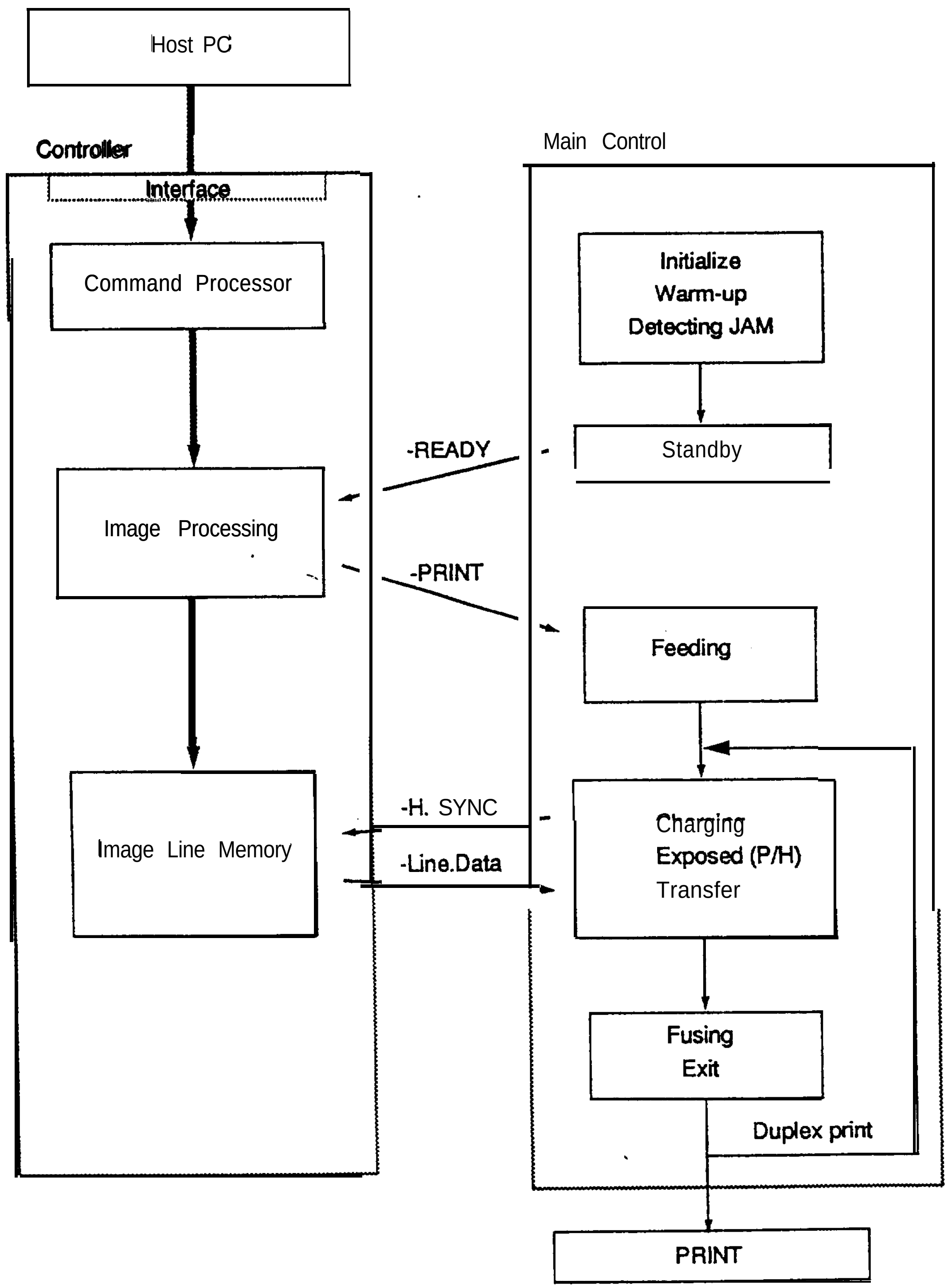
: Power Supply and Signal Transmission



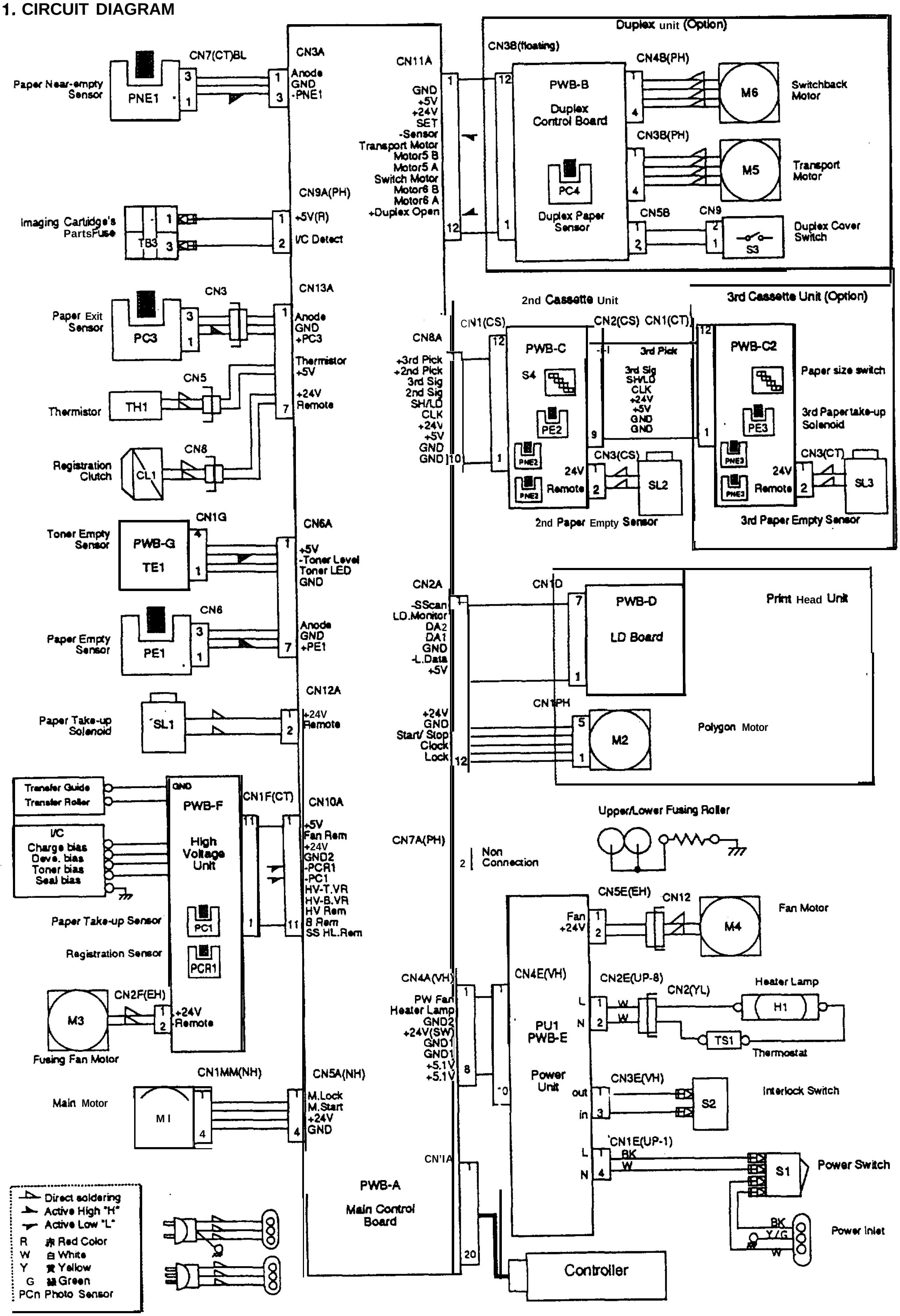
- The Power source supplies DC+5V and DC+24V to the main control board and AC to the Heater Lamp.
- The Printer receives print data from the host PC through an interface.
- The Controller adjusts the size and position of the print data to generate image data. Printing occurs after the image data has been transmitted to the Print Head unit via the main control board.
- The main control board controls the various parts of the engine, Print Head unit, and Duplex Unit. Third Cassette Unit.

IO. Sequence Flow

To carry out printing cycles, signals are transferred between the Controller, main control and engine as shown below.



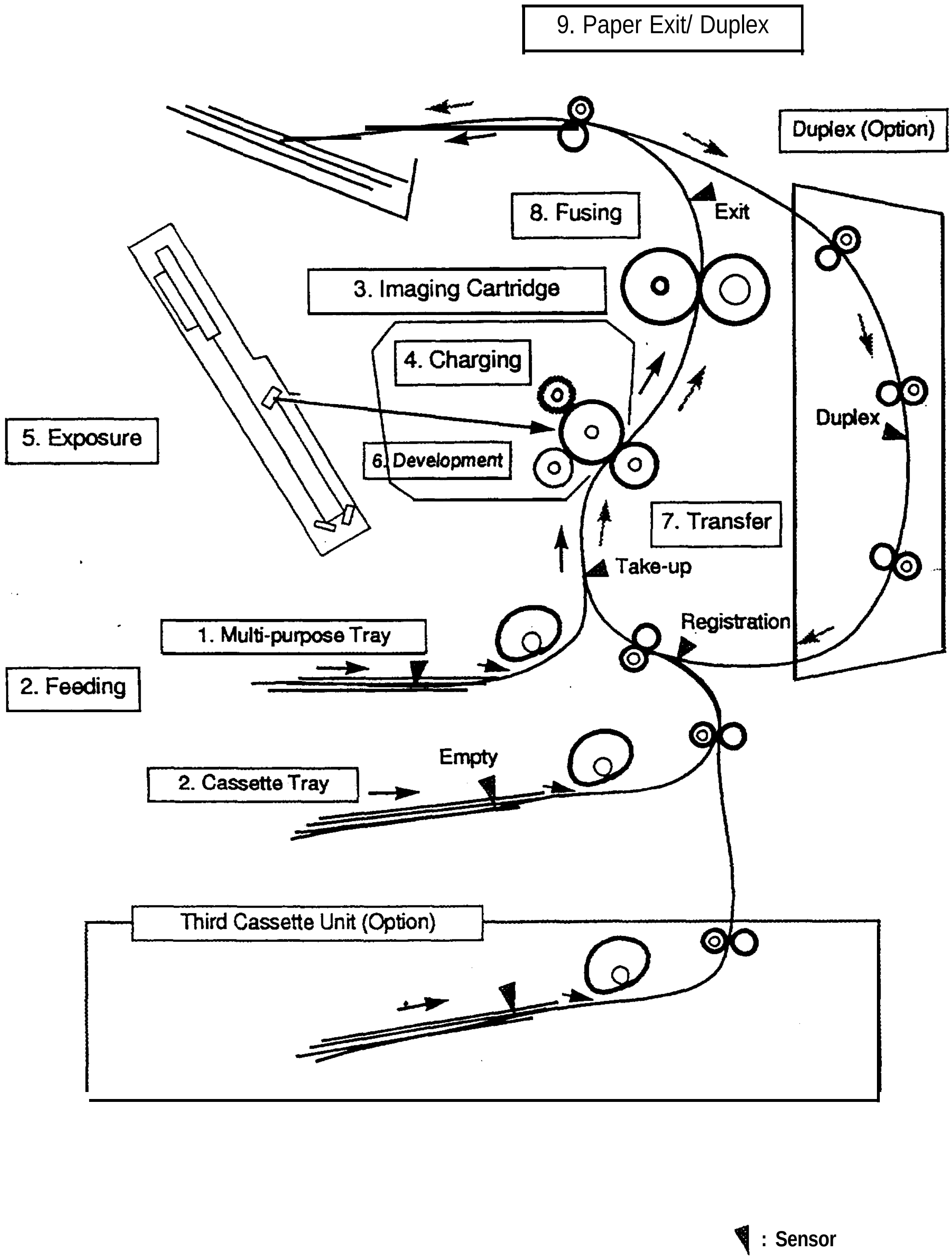
11. CIRCUIT DIAGRAM



C

C: MECHANICAL/ ELECTRICAL

1. PRINTING PROCESS

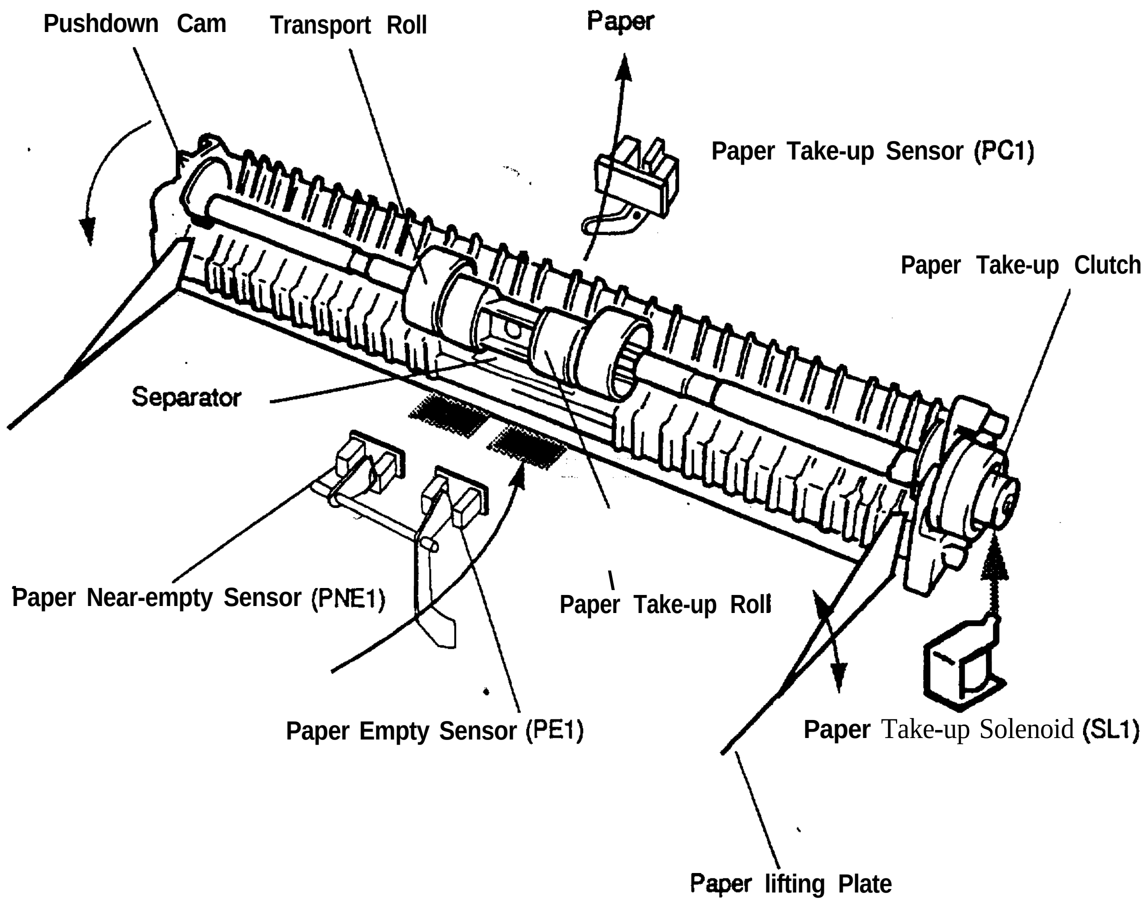


2. PAPER FEEDING

- Paper is fed from either the multi-purpose tray (holding up to 150 sheets of paper) or the 2nd paper tray. commonly called the universal cassette (holding up to 250 sheets of paper). (The optional Third Cassette Unit may be installed to serve as a fixed cassette capable of holding 500 sheets of paper or a universal cassette capable of holding 250 sheets of paper.)
- The Paper take-up roll takes up a sheet of paper and the transport roller feeds it to the PC drum.
- The signal indicating that the paper take-up sensor (PC1) is activated is used to determine the starting position of the image.
- The paper near-empty sensor (PNE1) detects a condition in which the amount of paper still available for use is 50 sheets or less.

2-1. Multi-purpose Tray

- The drive is transmitted from the main drive motor (M1) to the paper take-up clutch (one-way clutch), paper take-up roll, and the push-down cam.
- When the paper take-up solenoid (SL1) is energized, the paper take-up roll and push-down cam turn one complete turn. As the push-down cam turns, the paper lifting plate is raised so that the paper take-up roll can take up one sheet of paper. The friction with the separator pad ensures that only one sheet of paper is taken up at a time by the paper take-up roll.



0993-c021

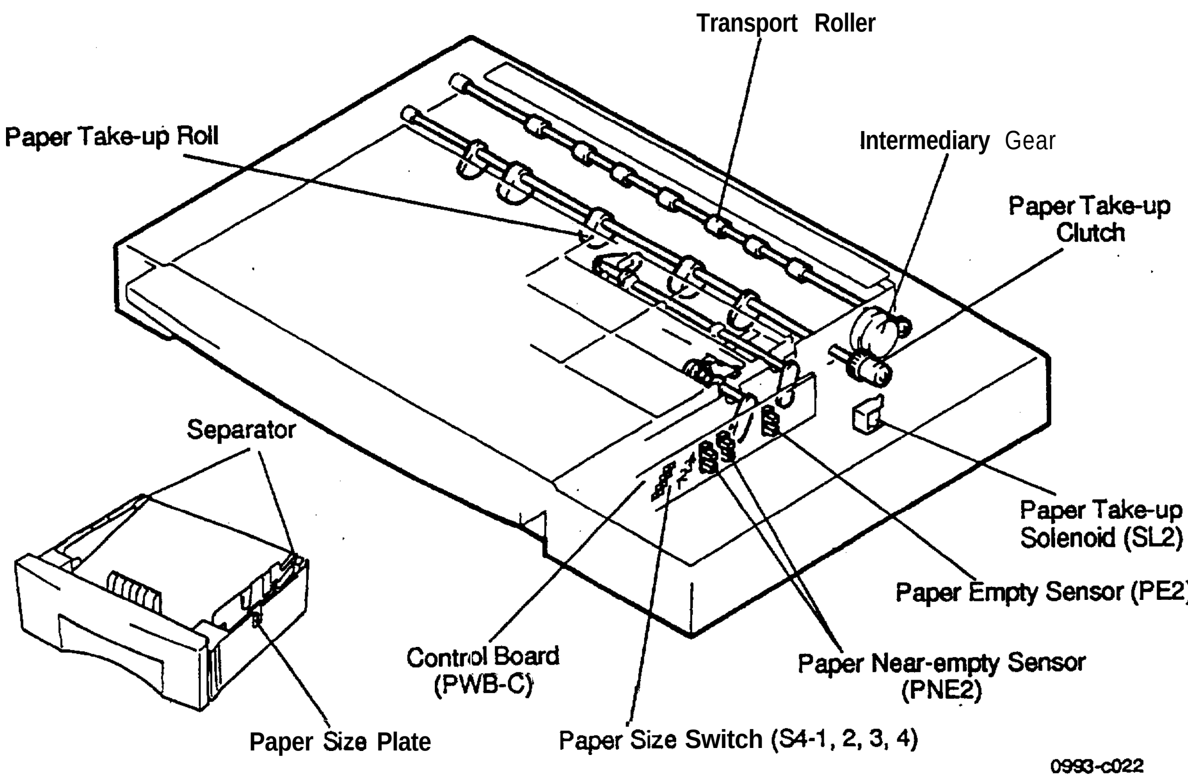
2-2. Second Cassette Tray

- The drive for the second paper tray is transmitted from the printer to the intermediary gear, paper take-up clutch, paper take-up roll, and the transport roller.
- The second paper tray is controlled by the main control board (PWB-A) via the control board (PWB-C).
- When the paper take-up solenoid (SL2) is energized, the paper take-up roll is turned one complete turn to take up a sheet of paper and the transport roller feeds it to the PC drum. The paper separator fingers prevent the second and subsequent sheets of paper from being taken up with the first one.
- The paper size switches (S4-1, 2, 3, and 4) on the control board (PWB-C) detect the size of the paper loaded in the tray. The combinations in which these switches are turned on and off are listed below to represent corresponding paper sizes.
- The paper near-empty sensor (PNE2) detects a condition in which the amount of paper still available for use is 50 sheets or less or 250 or less. (The optional Third Cassette Unit is configured in tbe same way.)

: Paper size Switch

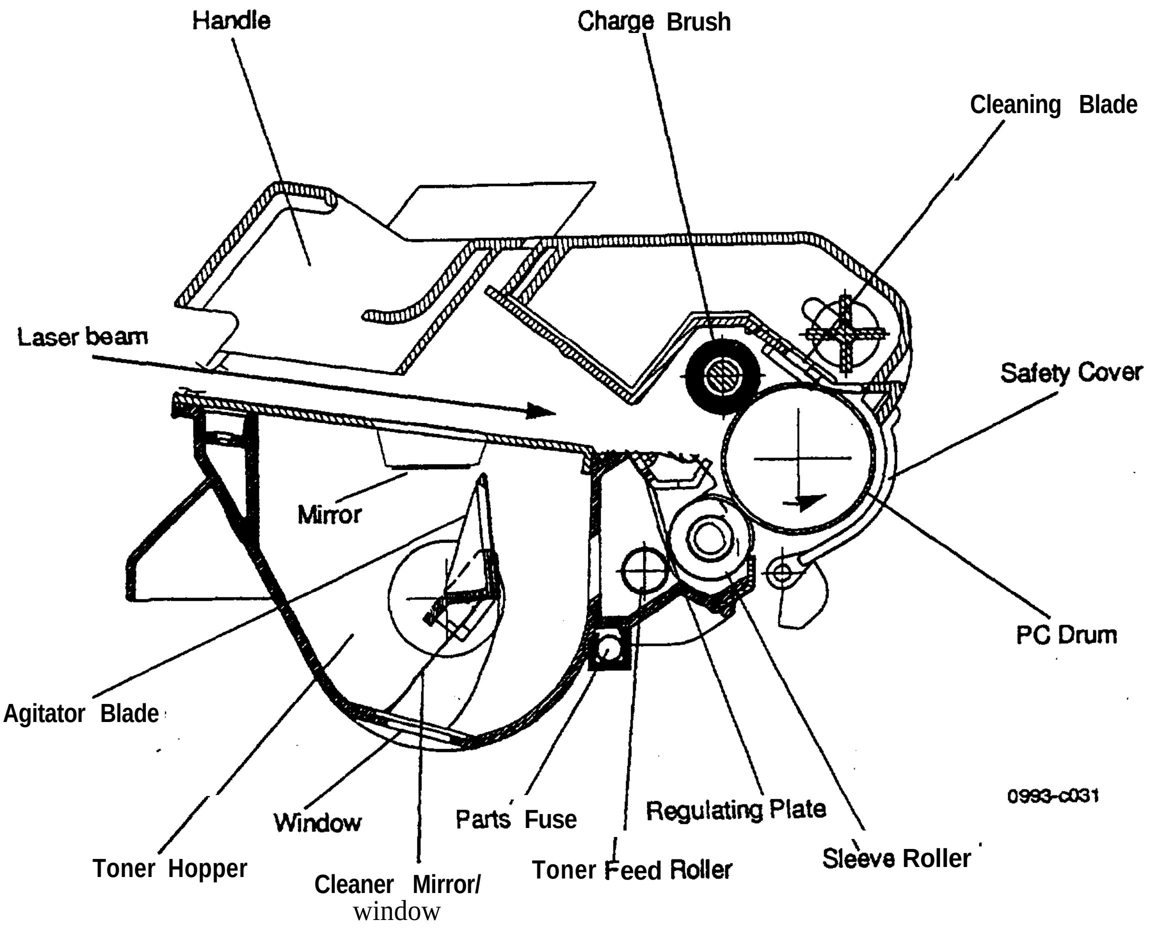
S4- 4,3,2,1	Paper	S4- 4,3,2,1	Paper
1 1 1 1	No Cassette	1 0 0 1	Executive L
1 1 1 0	Ledger L	0 0 1 0	Letter C
1 1 0 1	A3 L	0 1 0 0	A4 C
1 0 1 0	B4 L	1 0 0 0	G. Letter C
0 1 0 1	Legal L	0 0 0 1	B5 C
1 0 1 1	G. Legal L	0 0 1 1	A5 C
0 1 1 0	A4 L	0 1 1 1	Half Letter C
1 1 0 0	Letter L		No Cassette

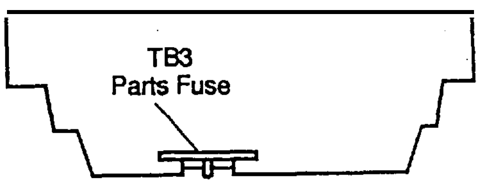
Note: 0: ON, 1: OFF

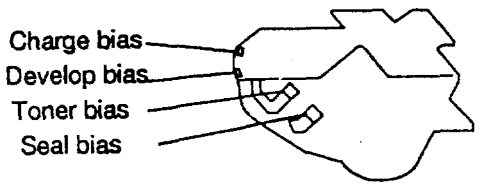


3. IMAGING CARTRIDGE

- The illustration below shows the construction of the PC drum charge unit and developing unit.





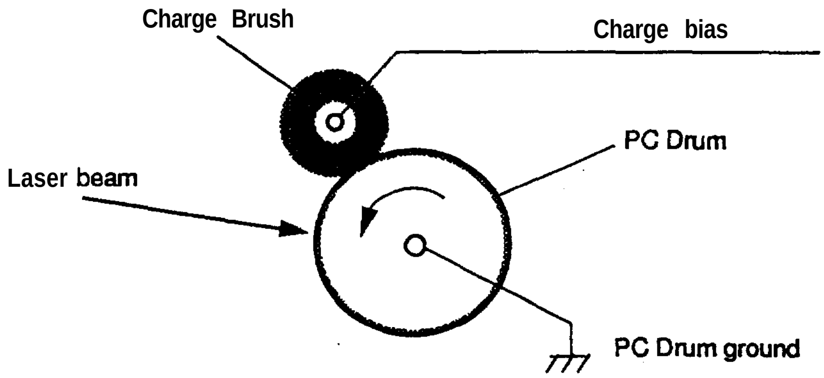


0993-c032

- The PC drum is charged by the PC drum charge brush.
- The laser beam from the print head produces an electrostatic latent image on the surface of the PC drum.
- The agitator blade of the toner hopper agitates toner and the toner feed roller feeds the toner to the sleeve roller.
- The toner regulating plate regulates the amount of toner fed to the sleeve roller.
- The sleeve roller feeds toner to the electrostatic latent image formed on the surface of the PC drum.
- Toner remaining on the surface of the PC drum is cleaned of by the cleaning blade.
- The mirror/ window cleaner wipes toner off the mirror and window used for detection of a toner-empty condition.
- The parts fuse (TB3) installed in the Imaging Cartridge is evidence that the cartridge is new.

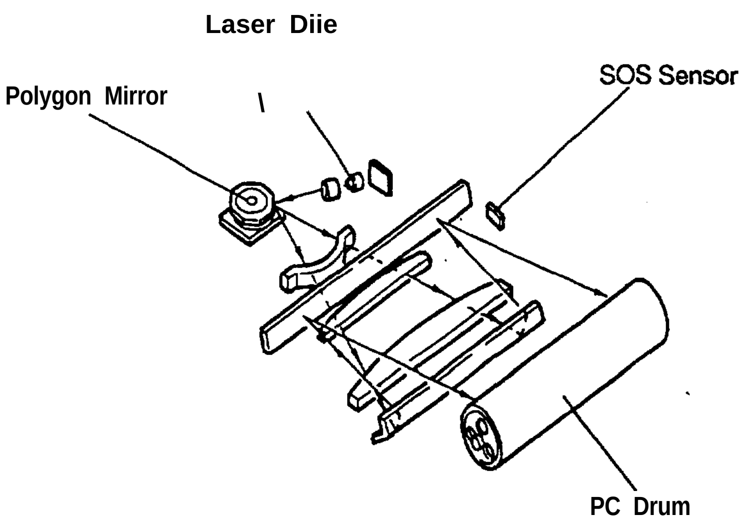
4. CHARGING

- A rotary brush is used to charge tbe PC Drum by static electricity before laser exposure. It applies charge directly to the PC Drum at a low voltage and therefore the amount of ozone produced is only negligible.



5. EXPOSURE (P/H)

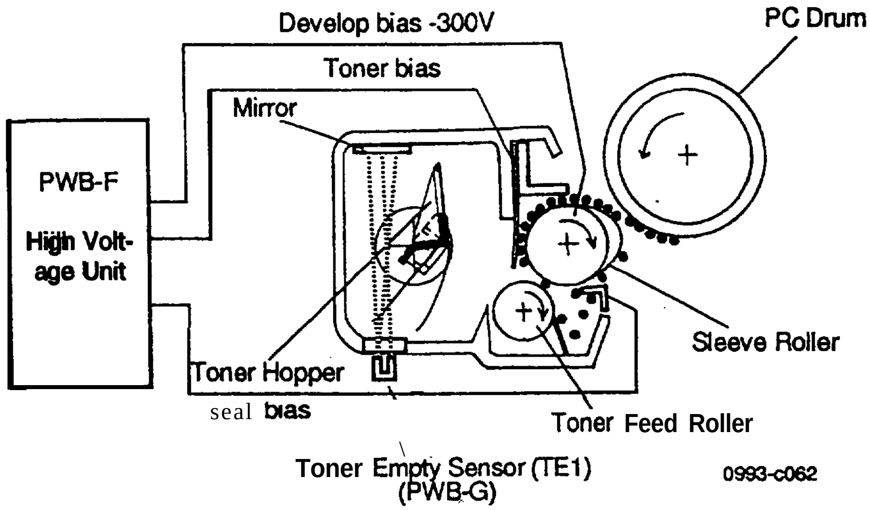
- The print head emits a laser beam to produce an electrostatic latent image on the surface of the PC Drum.
- There is a sensor called the SOS sensor installed that correctly times the illumination of the laser diode with the rotation of the polygon mirror.

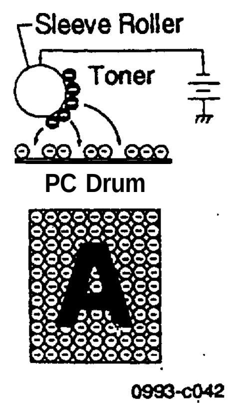


0993-c0432

6. DEVELOPMENT

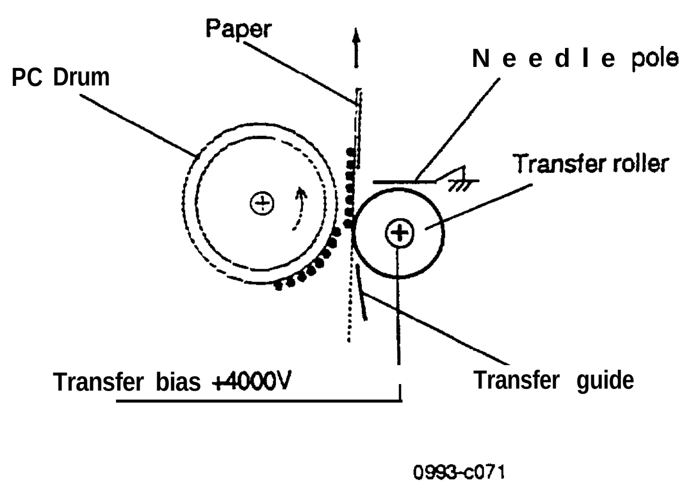
- The developing unit feeds toner to the electrostatic latent image on the surface of the PC drum to produce a visible toner image.
- When the print cycle is started and the Main drive motor (M1) is energized, the surface potential of the PC drum is approx. 0V. The sleeve roller voltage is made positive to prevent toner from sticking to the OV areas.
- The LED on PWB-G emits light which is then reflected off the mirror inside the toner hopper for use in the detection of a toner-empty condition. Readings are taken while the Main drive motor is turning.

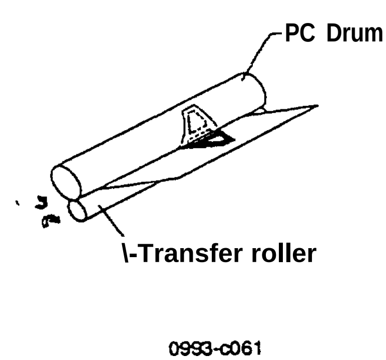




7. TRANSFER

- The image transfer roller transfers the toner image on the surface of the PC drum onto the paper. A comb electrode removes static electricity remaining on the paper.



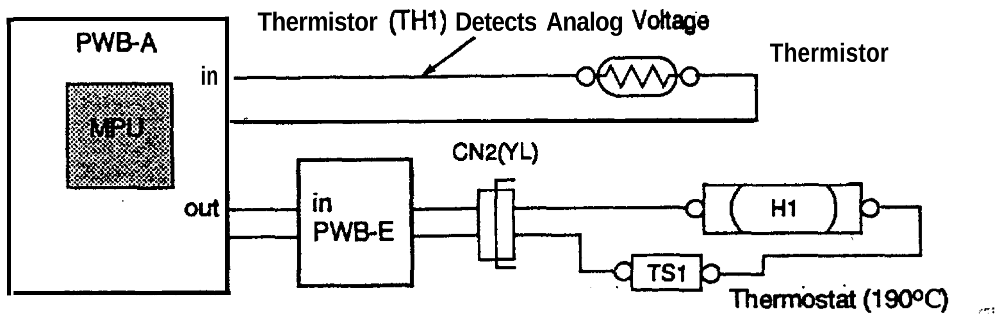


8. FUSING

- The fusing unit permanently fixes the toner image onto the paper. This is accomplished by a heated roller. The upper fusing roller, which is heated by a Heater Lamp built into it, melts the toner and then the upper and lower fusing rollers press the melted toner into the paper.
- The thermistor (TH1) detects the temperature of the upper fusing roller for fusing temperature control.
- The thermostat (TS1) turns OFF as it senses an abnormally high temperature, thereby cutting off current to the Heater Lamp (H1).

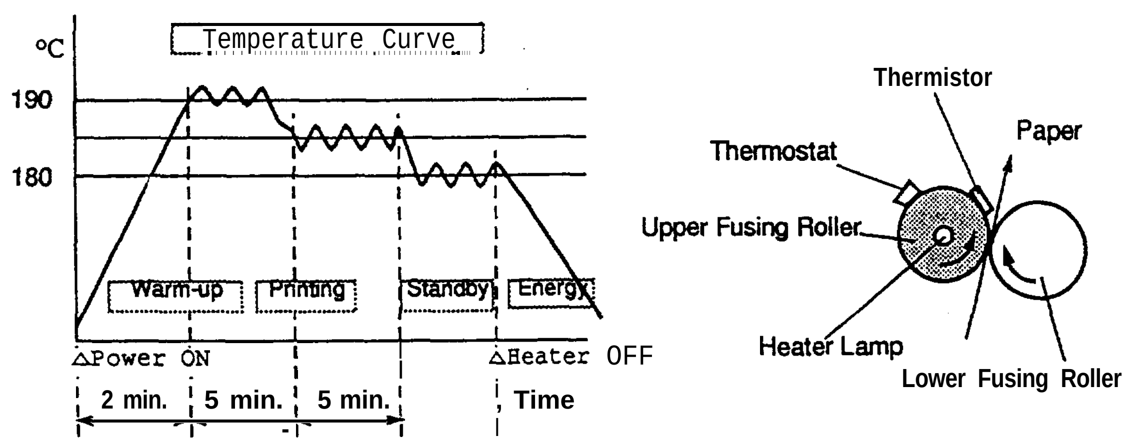
: Fusing Temperature Control Circuit

- The thermistor (TH1) detects the surface temperature of the upper fusing roller and inputs the corresponding analog voltage. to MPU.
- The Heater Lamp (H1) is turned ON or OFF by a signal from MPU output according to the temperature detected by the thermistor, thereby controlling the temperature of the upper fusing roller.
- When the thermistor detects an abnormally high temperature. MPU forces the Heater Lamp OFF.



: Fusing Unit Temperature Control

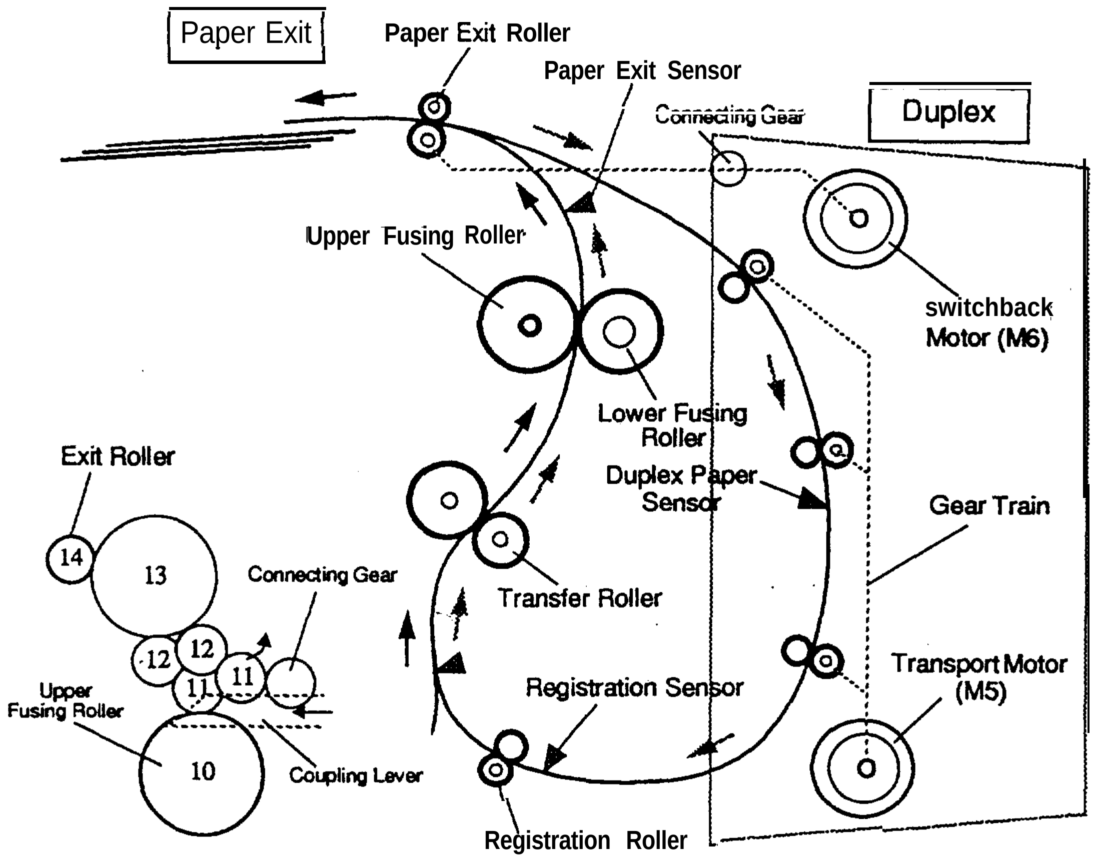
1. **During warm-up** The printer starts warm-up to attain a temperature of approx. 190°C when the power switch is turned ON.
2. **During print cycle** On receiving a print command, the printer starts a temperature control cycle to keep the upper fusing roller temperature at approx. 190°C
3. **During standby** The upper fusing roller temperature is maintained at approx. 180°C.
4. **Energy saving** The controller signal turns OFF the. Heater Lamp.



9. PAPER EXIT/ DUPLEX

9-t. EXIT

- The paper exit roller receives its drive from the Main Drive Motor (Ml) via a gear train. The paper is fed onto the exit tray with its printed side down



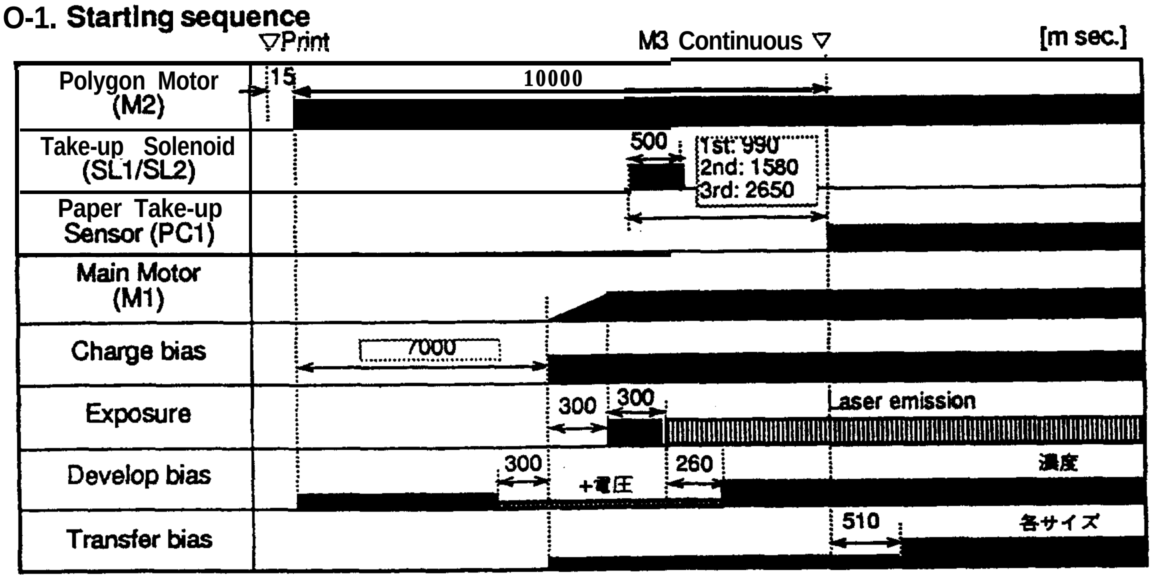
9-2. Duplex (Option)

- When the duplex unit is mounted on the printer, the exit roller is connected to the switchback motor (M6) by way of the coupling lever and gear.

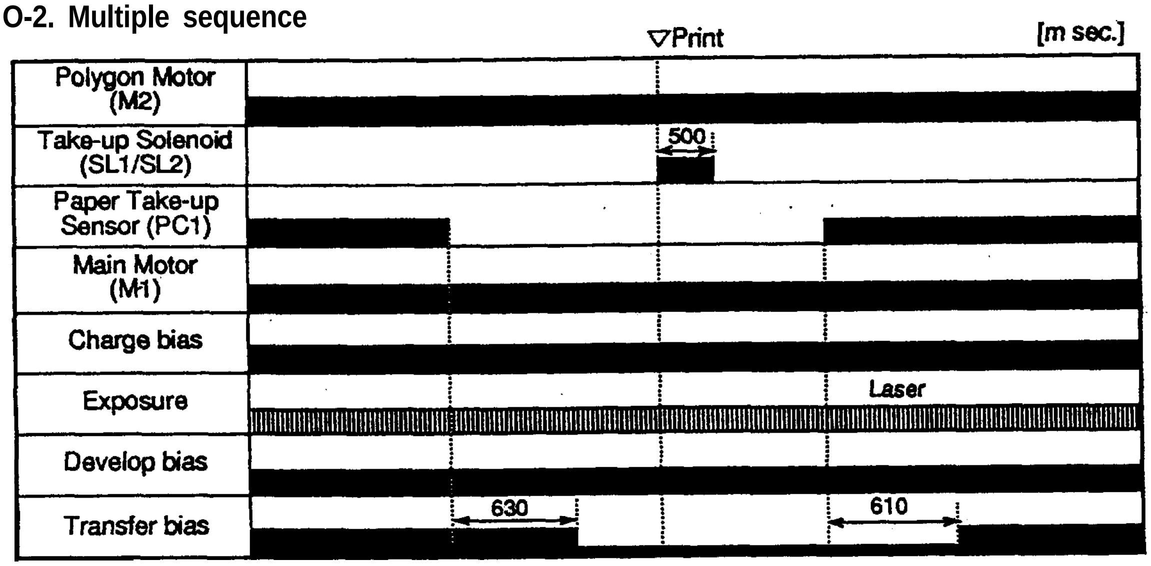
1. When the printing cycle is completed for l-sided printing, the paper, moving past the exit sensor, is fed out of the printer by the exit roller.
2. When the printing cycle is completed for the front side in 2-sided printing, the paper is fed towards the exit by the exit roller until it moves past the exit sensor. When the paper moves past the exit sensor, the switchback motor (M6) is turned backward, feeding the paper back to the duplex paper take-up area The transport motor (M5) then transports the paper up to the registration roller. Skew in paper is corrected by the registration sensor and then the registration roller feeds the paper to the image transfer section far printing to the back side. The paper, having gone through the second print cycle, is fed out of the printer by the exit roller.

IO. PRINTING SEQUENCE

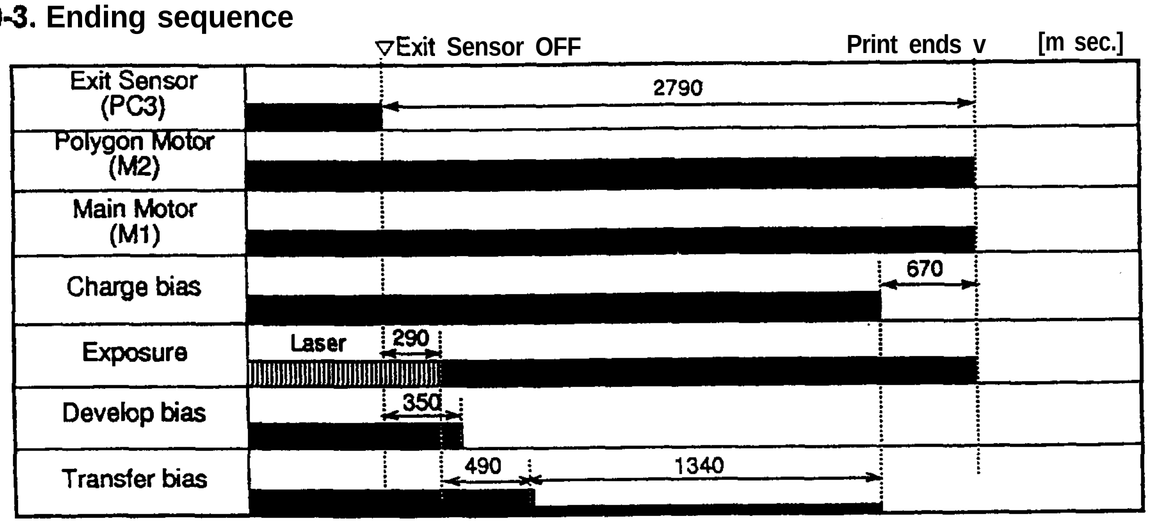
1 O-1. Starting sequence



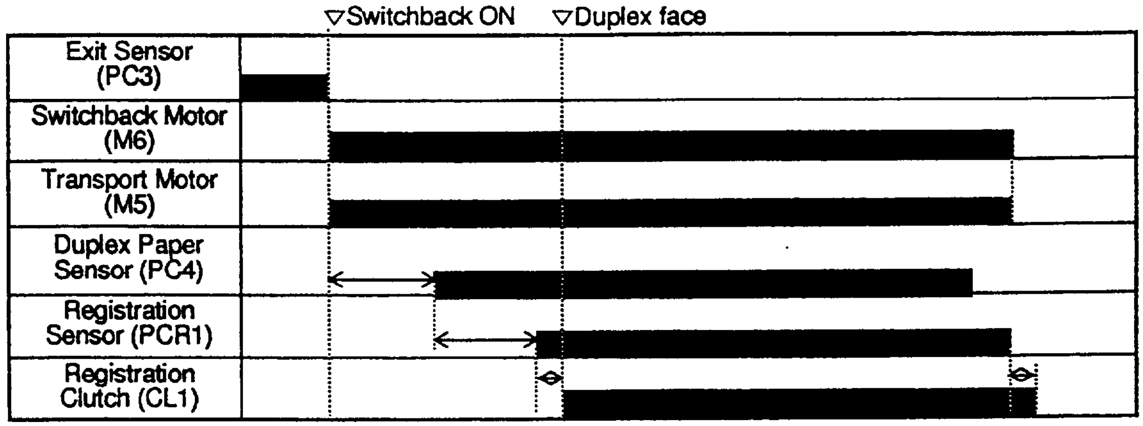
1 O-2. Multiple sequence



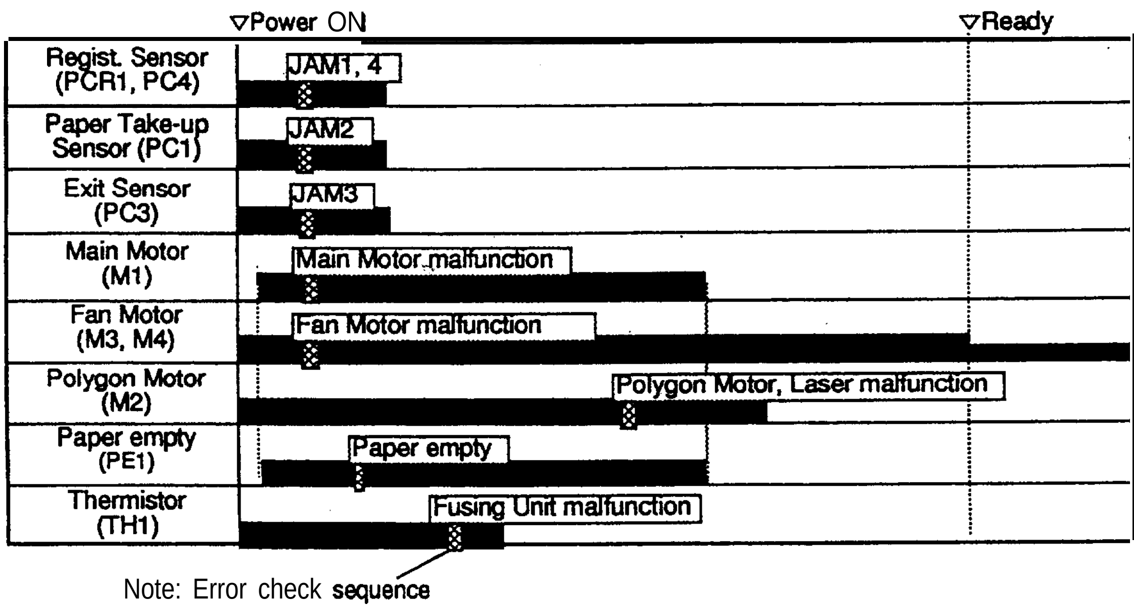
10-3. Ending sequence



1 O-4. Duplex sequence



10-5. Power ON sequence (Trouble Check)



D: DISASSEMBLY/ CLEANING

D

1. MAINTENANCE/ INSPECTION

I-I. Replacement of Parts

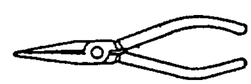
Parts Name	Replacement Cyde
Imaging Cartridge	Multi printing: 10,000; intermittent: 8,000 sheets
Paper Take-up Roll	At detection of fault, or, 120,000 sheets of multi printing
Fusing Unit	At detection of fault, or, 120,000 sheets of multi printing
Image Transfer Unit	At detection of fault, or, 120,000 sheets of multi printing

1-2. Cleaning Parts

Parts Name	Cleaning Procedure
Paper Take-up Roll	Wipe the dust off with a soft cloth dampened with alcohol.
Fusing Roller	Wipe the dust off with a soft cloth dampened with alcohol.
Image Transfer Roller	Wipe the surface with a dry piece of soft cloth.

Note: Do not touch the surface of the Image Transfer Roller with the hand.

I-3. Required Service Tools

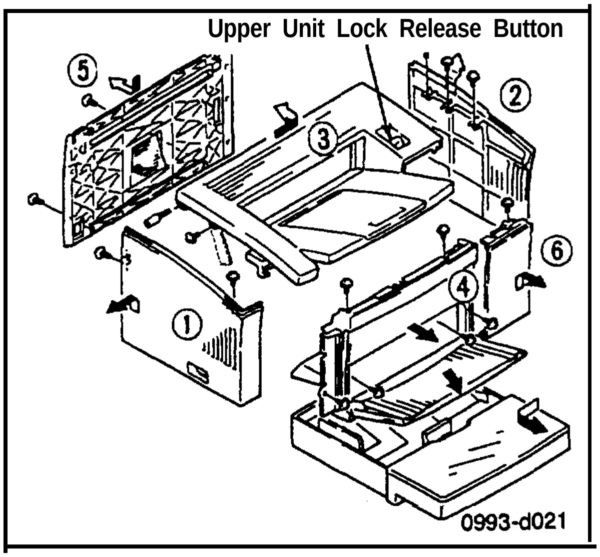
Tools	+Driver (No.2) 	-Driver 	Needle Nose Pliers 
Use	Generally use	E-ring	E-ring

Note: Grease: For the Drive Section: MOLYCORT EMBOL

2. DISASSEMBLY PROCEDURE

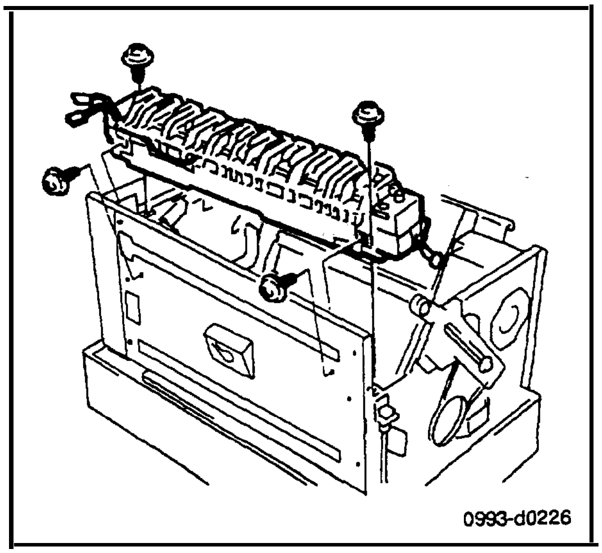
Before starting the disassembly procedure, press the upper unit lock release button to open the Upper Unit. Then, remove the Imaging Cartridge.

2-1. Outer Cover



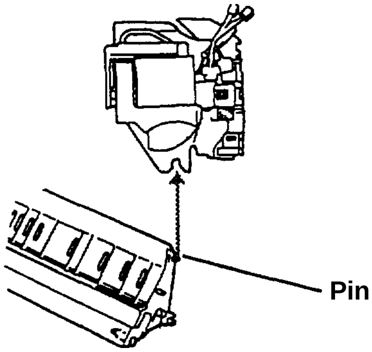
1. Remove the Left Cover. (2 screws)
2. Remove the Right Cover. (3 screws)
3. Remove the Upper Unit. (2 screws)
4. Remove the Right Front Cover. (1 screw)
5. Remove the Front Cover. (6 screws)
6. Remove the Rear Cover. (2 screws)

2-2. Fusing Unit

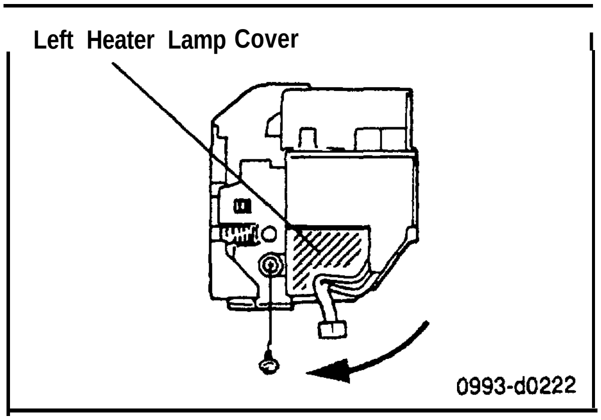


1. Remove the Outer Cover. (Refer to section 2-1.)
2. Remove the Fusing Unit. (4 screws, 3 connectors)

Note: When reassembling the Fusing Unit, adjust the position of the Image Transfer Unit.

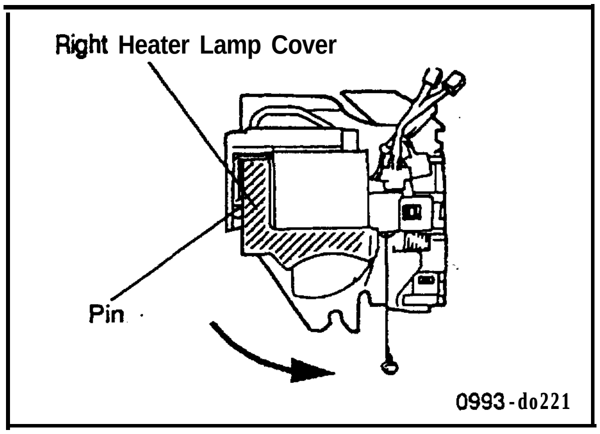


: Heater Lamp Cover



3. Remove the Left Heater Lamp Cover. (1 screw)

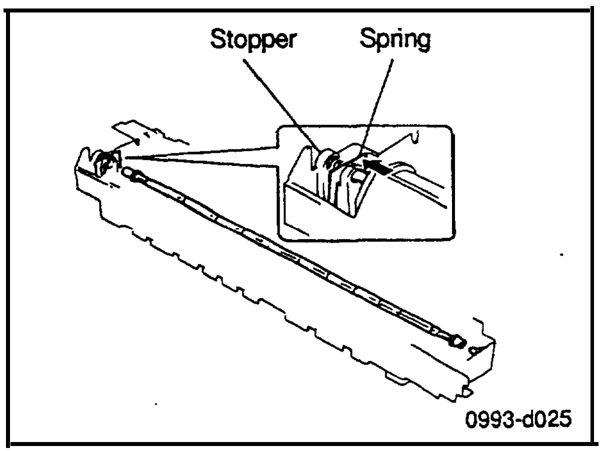
Note: When removing the Left Heater Lamp Cover, turn the Cover in the clockwise direction.



4. Remove the Right Heater Lamp Cover. (1 screw)

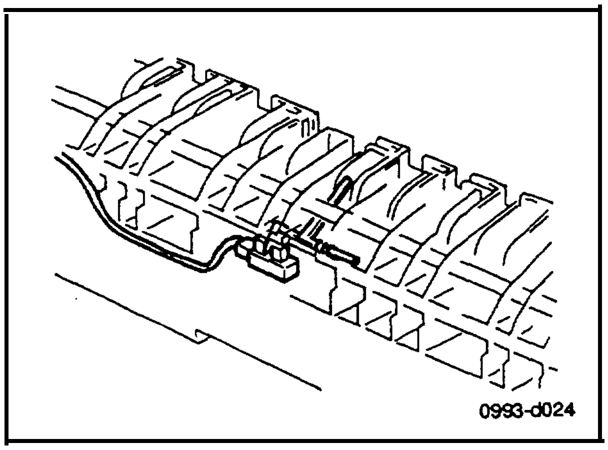
Note: When removing the Right Heater Lamp Cover, turn the Cover in the counter clockwise direction.

: Heater Lamp



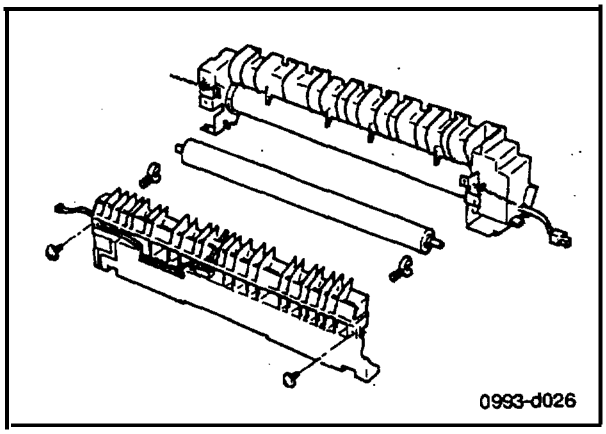
5. Holding the right end of the Heater Lamp, take out the stopper and spring.
6. Pressing the Heater Lamp in the direction indicate by the arrow, remove it from the heater socket.

: Paper Exit Sensor



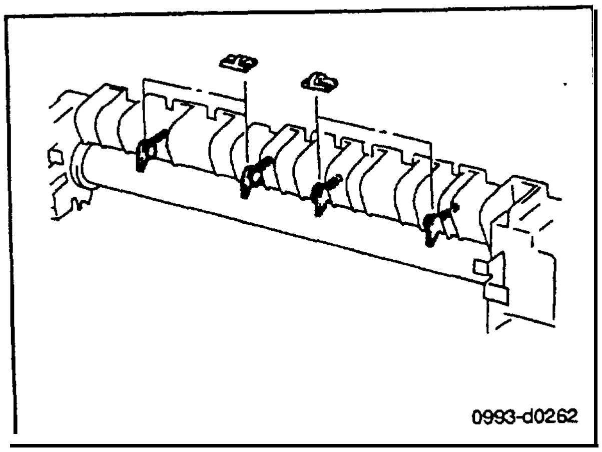
1. Remove the Paper Exit Sensor. (1 connector)
2. Remove the actuator. (1 spring)

: Lower Fusing Roller



1. Remove the Rear Fusing Cover. (2 screws)
2. Push the lock stopper in the direction indicated by the arrow and remove the Lower Fusing Roller.

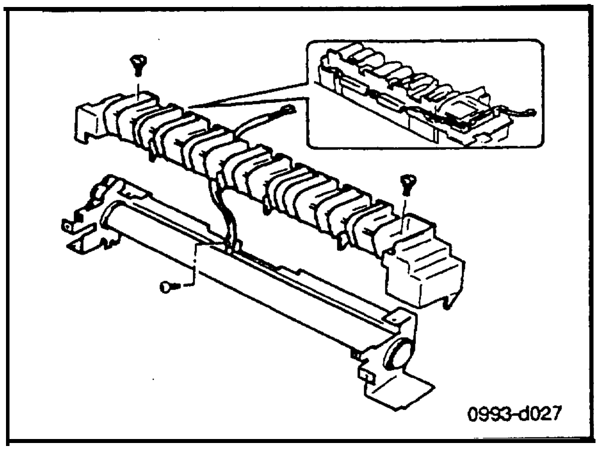
: Separator



1. Release the stoppers of the separator.
2. Pulling and sliding remove the stoppers.

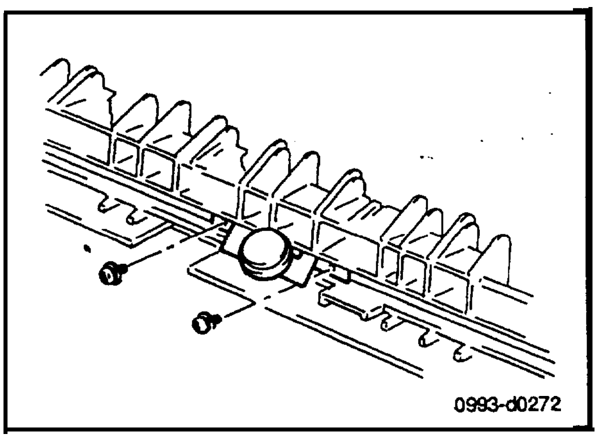
Note: The two paper separator finger stoppers on the right face the opposite direction to the two on the left.

: Thermistor



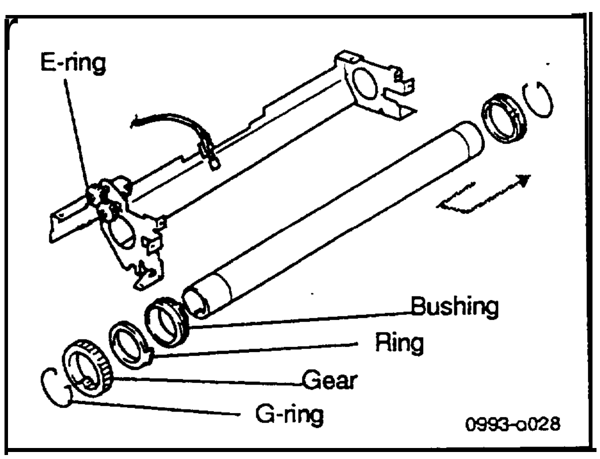
1. Remove the front Fusing Cover. (2 screws, 1 harness)
2. Remove the Thermistor. (1 screw)

: Thermostat



1. Remove the Thermostat. (2 screws)

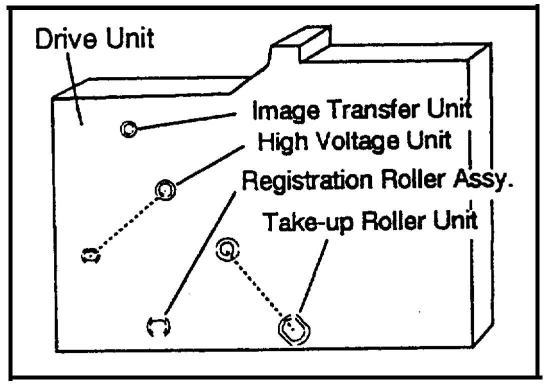
: Upper Fusing Roller, Gear, G-ring, E-ring



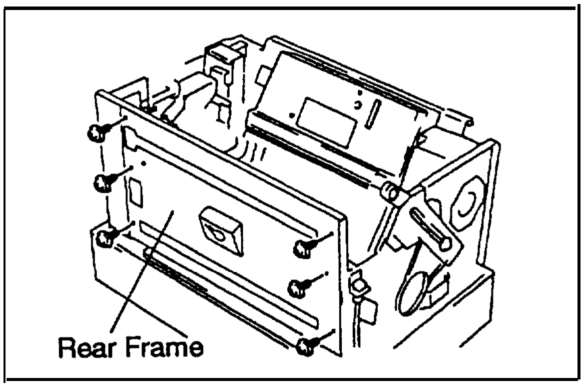
1. Remove the G-ring.
2. Remove the Gear, Ring. Bushing.
3. Remove the Upper Fusing Roller as indicated by the arrow.
4. Remove the Gear. (1 E-ring)

Note: When disassembling/ reassembling the Transfer Unit, High Voltage Unit, Registration Roller Assy. and Paper Take-up Roller Unit, please note that each has a peg that fits into a hole in the Right Frame and a screw that secures the unit in the Left Frame.

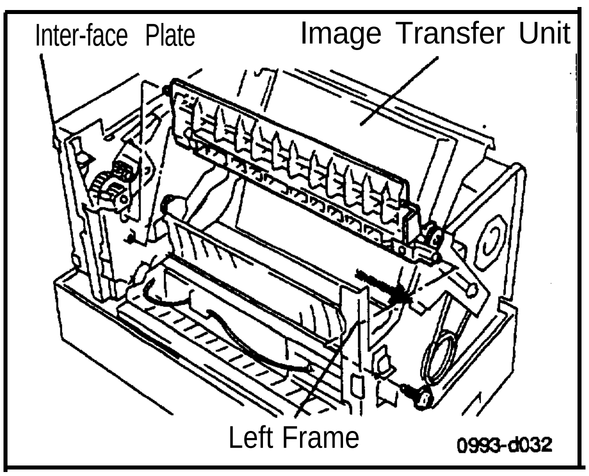
- Release each unit from the Drive Unit when removing the unit.



2-3. Image Transfer Unit



1. Remove the Outer Cover. (Refer to sect. 2- 1)
2. Remove the Fusing Unit. (Refer to sect. 2-2)
3. Remove the Rear Frame. (6 screws, 1 connector)

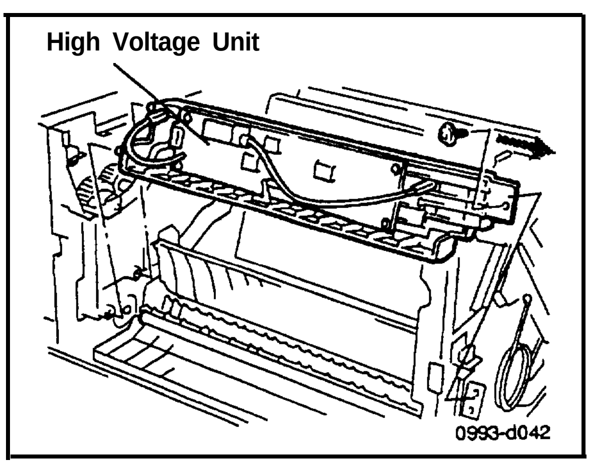


4. Remove the Image Transfer Unit. (1 screw)

Note: With the Left Frame open, release the Transfer Unit. Pulling the Transfer Unit in the direction indicated by the arrow, remove it.

Note: Don't touch the surface of the Transfer Roller with the hand.

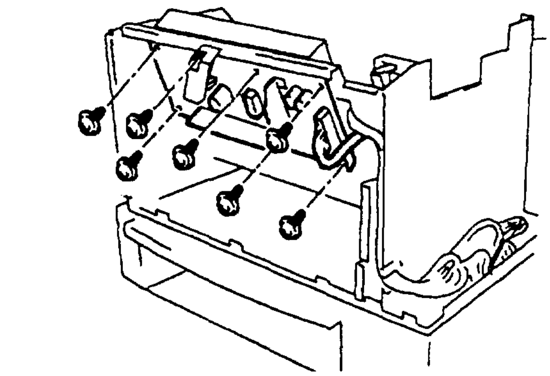
2-4. High Voltage Unit



1. Remove the Outer Cover. (Refer to sect. 2- 1)
2. Remove the Fusing Unit. (Refer to sect. 2-2)
3. Remove the Transfer Unit. (Refer to sect. 2-3)
4. Remove the High Voltage Unit. (1 screw, 1 connector)

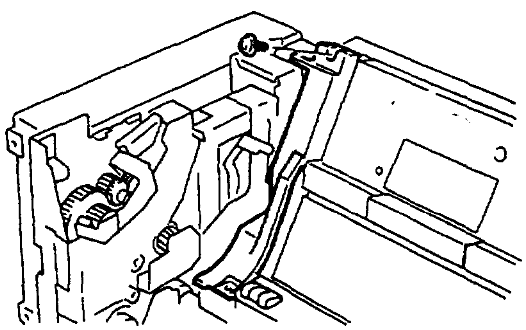
Note: Pulling the High Voltage Unit in the direction indicated by the arrow, remove it.

2-5. Power Unit


0993-d0512

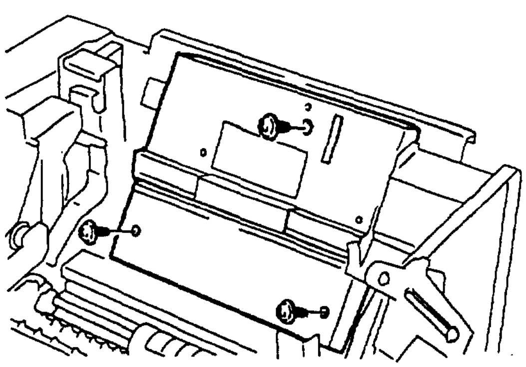
1. Remove the Outer Cover. (Refer to sect. 2-l)
2. Remove the Power Unit. (6 screws, 5 connectors)

2-6. Print Head Unit


0993-d0622

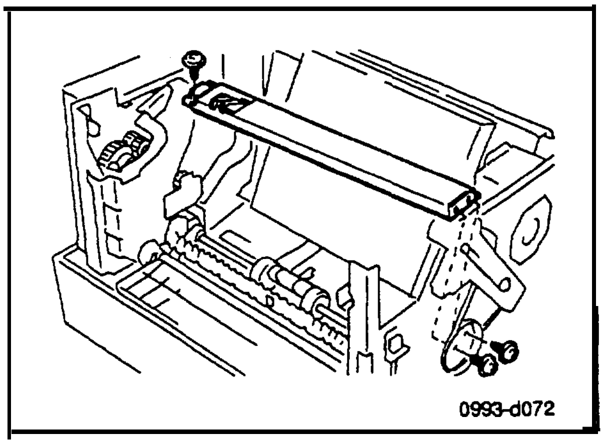
1. Remove the Outer Cover. (Refer to sect. 2- 1)
2. Remove the Harness Cover. (2 screws)

Note: Pulling the harness cover to the right, remove it.


0993-d062

3. Remove the Print Head Unit. (3 *screws, 1* connector)

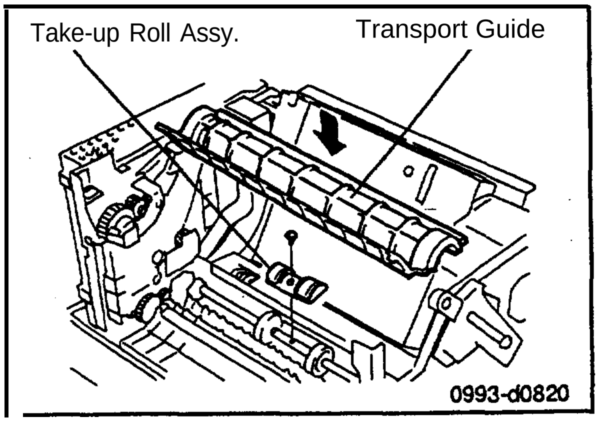
2-7. Paper Empty Sensor Assy.



1. Remove the Outer Cover. (Refer to sect. 2-1)
2. Remove the Harness Cover. (Refer to sect 2-6)
3. Remove the Paper Empty Sensor Assy. (3 screws, 2 connectors)

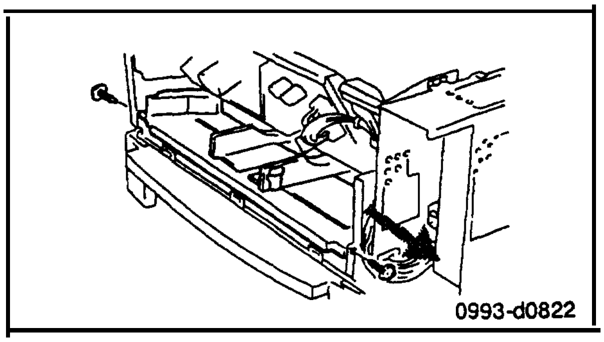
Note: After reinstallation, Secure the harness in the wire saddle.

2-8. Paper Take-up Roll Assy.



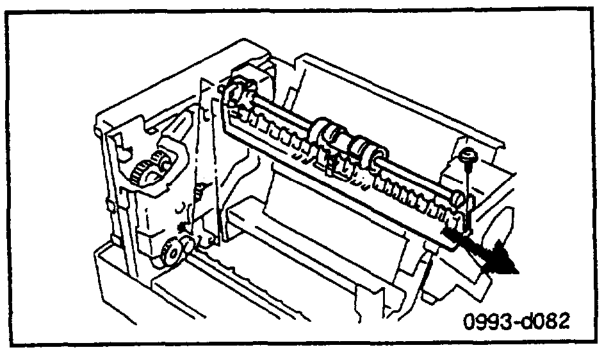
1. Remove the Paper Empty Sensor Assy. (Refer to sect. 2-7)
2. Pulling up, remove the Transport Guide.
3. Remove the Paper Take-up Roll Assy. (1 screw)

2-9. Registration Roller Assy.



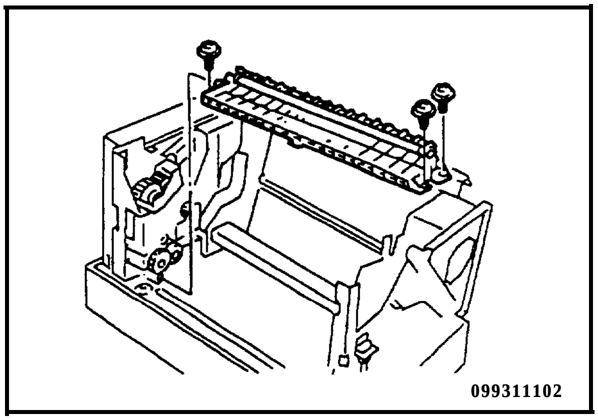
1. Remove the Outer Cover. (Refer to sect. 2-1)
2. Remove the Fusing Unit. (Refer to sect. 2-2)
3. Remove the Transfer Unit. (Refer to sect. 2-3)
4. Remove the High Voltage Unit. (Refer to sect. 2-4)
5. Remove the Paper Empty Sensor Assy. (Refer to sect. 2-7)
6. Remove the Paper Lifting Plate. (1 screws)

Note: Move the printer Left Frame in the direction of the arrow to unlock the plate from the frame.



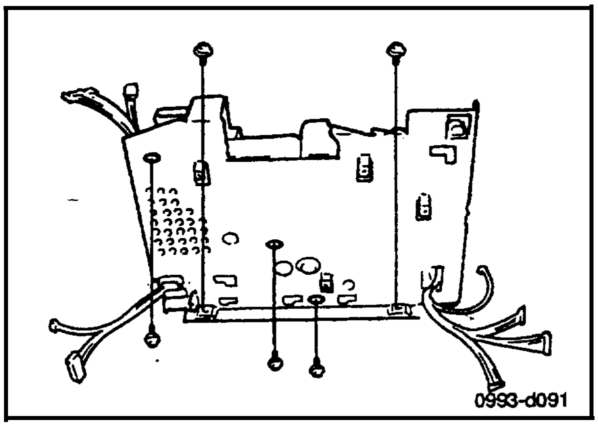
7. Remove the Paper Take-up Roller Unit. (1 screw)

Note: Slide the unit in the direction of the arrow to unlock it from the tight drive unit of the printer.



8. Remove the Registration Roller Assy. (3 screws)

2-10. Drive Unit

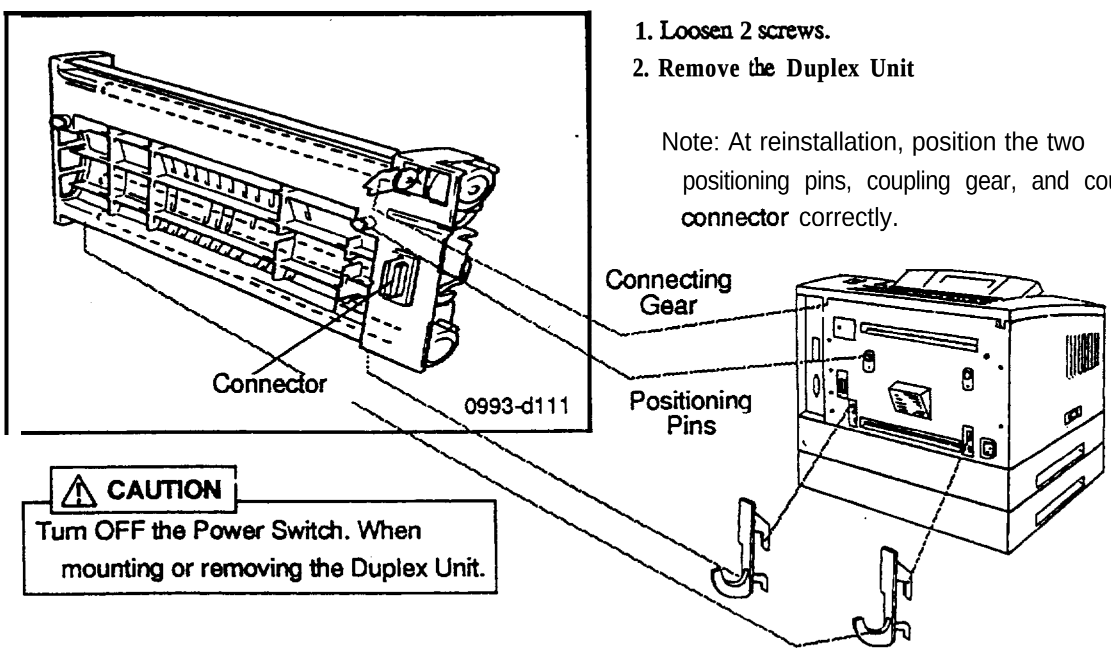


1. Remove the Outer Cover. (Refer to sect. 2-1)
2. Remove the Fusing Unit (Refer to sect 2-2)
3. Remove the Transfer Unit (Refer to sect 2-3)
4. Remove the High Voltage Unit (Refer to sect. 2-4)
5. Remove the Paper Empty Sensor Assy. (Refer to sect. 2-7)
6. Remove the Registration Roller Assy. (Refer to sect. 2-8)
7. Remove the Drive Unit (5 screws, 7 connectors)

2-1 1. Duplex Unit

1. Loosen 2 screws.
2. Remove the Duplex Unit

Note: At reinstallation, position the two positioning pins, coupling gear, and coupling connector correctly.



⚠ CAUTION

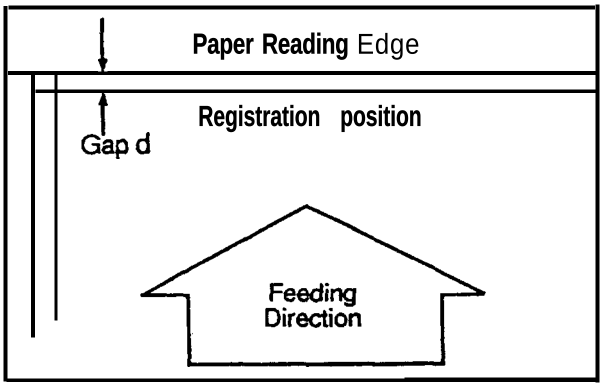
Turn OFF the Power Switch. When mounting or removing the Duplex Unit.

E: ADJUSTMENT

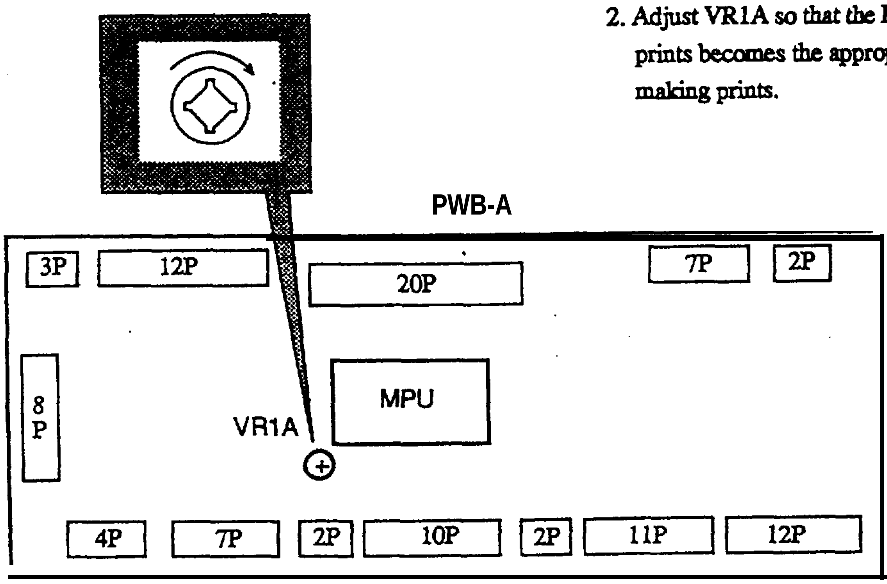
E

1. IMAGE REGISTRATION

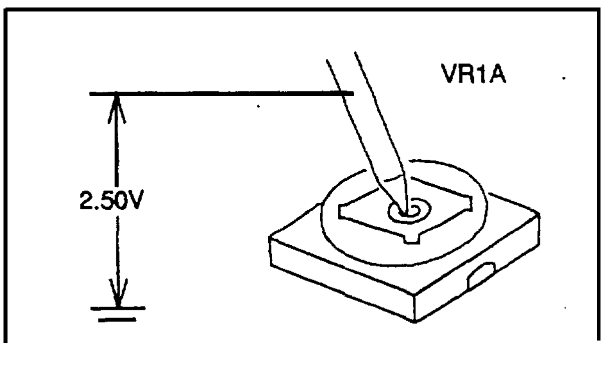
: After the Main Control Board (PWB-A) is replaced, adjust the gap by following the procedure described below.



1. Remove the Light Front Cover. (Refer to the D: Disassembly/ Cleaning item 2-l)



2. Adjust VR1A so that the Registration Gap d on the prints becomes the appropriate distance while making prints.



3. Another adjustment.

Adjust the VR1A so that the Voltage is 250V between VR1A and ground terminal.

F: TROUBLESHOOTING

1. JAM DETECTION

Note: This printer detects the following misfeeds and malfunctions. When any of these trouble conditions is detected, all printer elements are brought to a stop except the fan motor.

l-l. JAM Detection

A misfeed may be classified into one of four categories, JAM1, JAM2, JAM3, and JAM4, as detailed below.

1. When paper is fed from the Multi-purpose tray, the Paper Take-up Sensor (PC1) is in the deactivated state approx. 1.6 sec. after the Paper Take-up Roll has started turning (JAM1).
2. When paper is fed from the 2nd paper tray, the Registration Sensor (PCR1) is in the deactivated state approx. 1.4 sec. (approx. 2.5 sec. for the Third Cassette Unit) after the Paper Take-up Roll has started turning (JAM1).
3. When paper is fed from the 2nd paper tray, the Paper Take-up Sensor (PC1) is in the deactivated state approx. 1.0 sec. after the leading edge of the paper has reached the Registration Sensor (PCR1) (JAM1).
4. The Paper Take-up Sensor (PC1) is in the activated state when the Power is turned ON, or the Upper unit is closed or Duplex Cover is closed (JAM2).
5. The Paper Take-up Sensor (PC1) is in the activated state the period of time equivalent to the paper size plus 2.8 sec. after the leading edge of the paper has reached the Paper Take-up Sensor (PC1) (JAM2).
6. The Paper Exit Sensor (PC3) is in the deactivated state approx. 2.3 sec. after the leading edge of the paper has reached the Paper Take-up Sensor (PC1) (JAM2).
7. The Paper Exit Sensor (PC3) is in the activated state approx. 2.3 sec. after the trailing edge of the paper has-moved past the Paper Take-up Sensor (PC1) (JAM3).
8. The Paper Exit Sensor (PC3) is in the activated state when the Power is turned ON, or the Upper unit is closed a Duplex cover is closed (JAM3).
9. The Duplex Paper Sensor (PC4) is in the deactivated state approx. 2.7 sec. after tbe Switchback motor of the Duplex unit has been energized (JAM4).
10. The Registration Sensor (PCR1) is in the deactivated state approx. 1.1 sec. after the leading edge of the paper has reached the Duplex Paper Sensor (PC4) (JAM4).
11. When paper is fed from the Duplex, the Paper Take-up Sensor (PC1) is in the deactivated state approx. 1.0 sec. after the leading edge of the paper has reached the Registration Sensor (PCR1) (JAM4).
12. The Duplex Paper Sensor (PC4) is in the activated state when the Power is turned ON. or the Upper unit is closed a Duplex cover is closed (JAM4).
13. The Registration Sensor (PCR1) is in the activated state when the Power is turned ON, or the Upper unit is closed or Duplex cover is closed (JAM1, JAM4).

: JAM Resetting Procedure

After the JAM has been cleared, close the Upper Unit or the Duplex Cover.

1-2. Fusing Unit malfunction

The printer considers that there is a fusing malfunction when any of the following four conditions is detected.

1. The temperature of the upper fusing roller (as measured with the thermistor) is such that the change in the thermistor voltage is 0.1V or less over a period between 12 sec. to 30 sec. after warm-up has started (with the fusing roller temperature being 160°C or less).
2. The fusing roller temperature does not exceed 190°C for a 120 sec. period after warm-up has started.
3. The fusing roller temperature becomes less than 140°C in the standby state.
4. The fusing roller temperature becomes less than 150°C during a printing cycle.
5. The fusing roller temperature remains more than 240°C while the fusing temperature is being controlled.

13. Laser malfunction

The laser output level is adjusted before printing.
A laser fault is detected if the output level cannot be adjusted to the specified value.

1-4. Polygon Motor malfunction

The printer considers that there is a polygon motor malfunction when any of the following three conditions is detected.

1. The polygon motor lock signal de-energized within 10.0 sec. after the motor has been energized.
2. When the Polygon Motor is ON, the lock signal switches ON then remains OFF for more than 1 sec.
3. The SOS signal is not output during printing time.-

1-5. Fan Motor malfunction

The printer considers that there is a fan motor malfunction when any of the following two conditions is detected.

1. A fusing fan motor malfunction is detected when the voltage used to detect the fusing fan motor current remains 360/230 mV or less (= high speed/ low speed) for a continuous 0.5 sec. period.
2. A power supply fan motor malfunction is detected when the voltage used to detect the power supply fan motor current remains 170/150 mV or less (= high speed/low speed) for a continuous 0.43 sec. period.

l-6. Main Motor malfunction

The printer considers that there is a main drive motor malfunction when any of the following two conditions is detected.

1. The main drive motor lock signal (connector CN5A-1) remains OFF for a continuous 1.0 sec. period.,
2. The main drive motor lock signal (connector CN5A-1) is OFF 1.0 sec. after the Main drive motor has been energized.

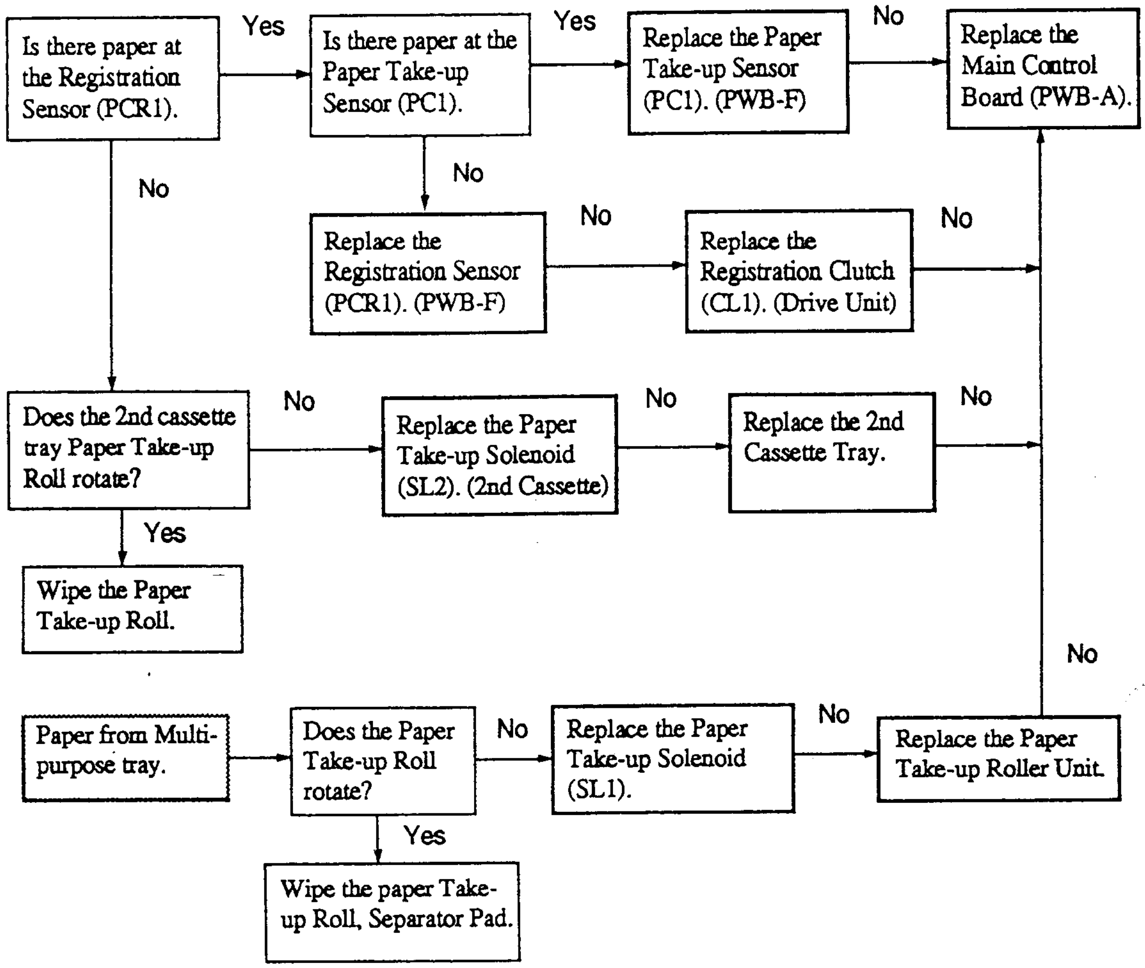
: Malfunction Resetting Procedure

After the malfunction has been cleared, turn the Power OFF for 3 sec. and then back ON.

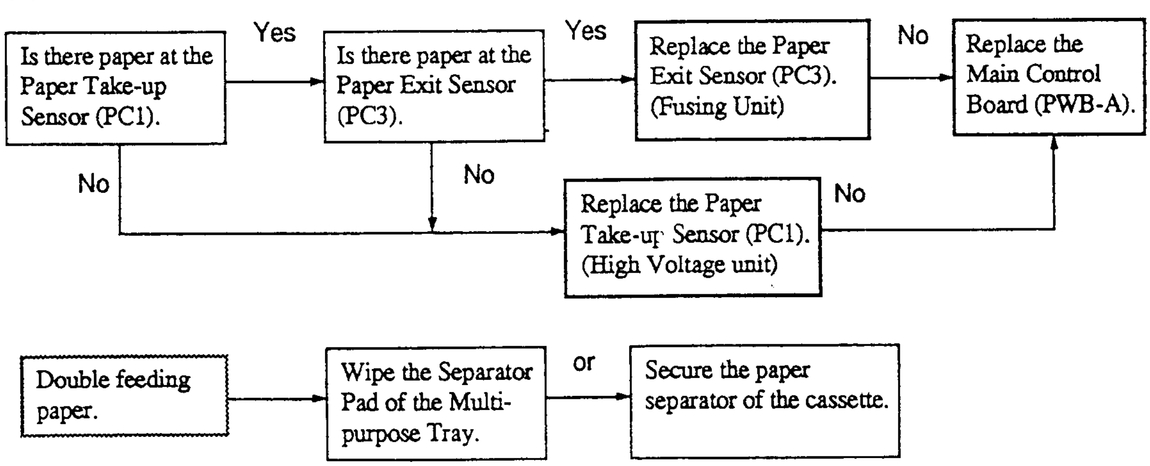
2. ACTION FOR DETECTED JAM OR MALFUNCTION

Note: Its position and perform the appropriate JAM1-4 trouble-shooting procedure before removing the jammed paper.

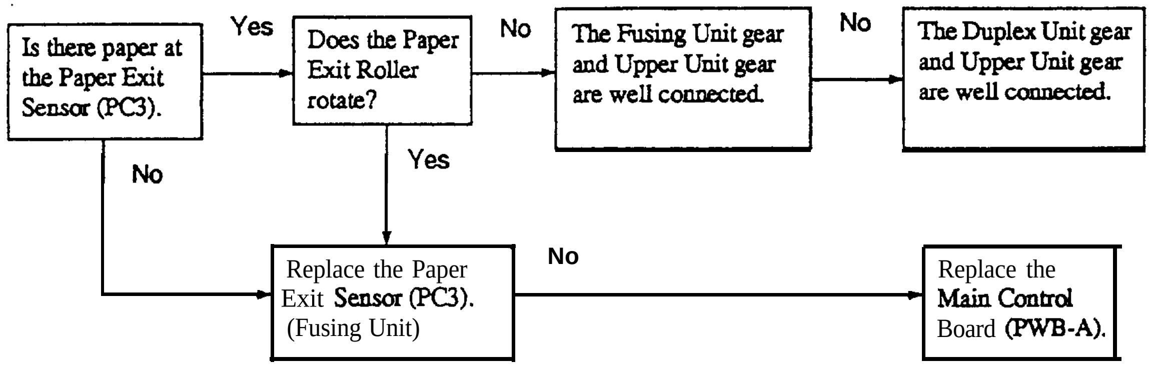
2-1. JAM1



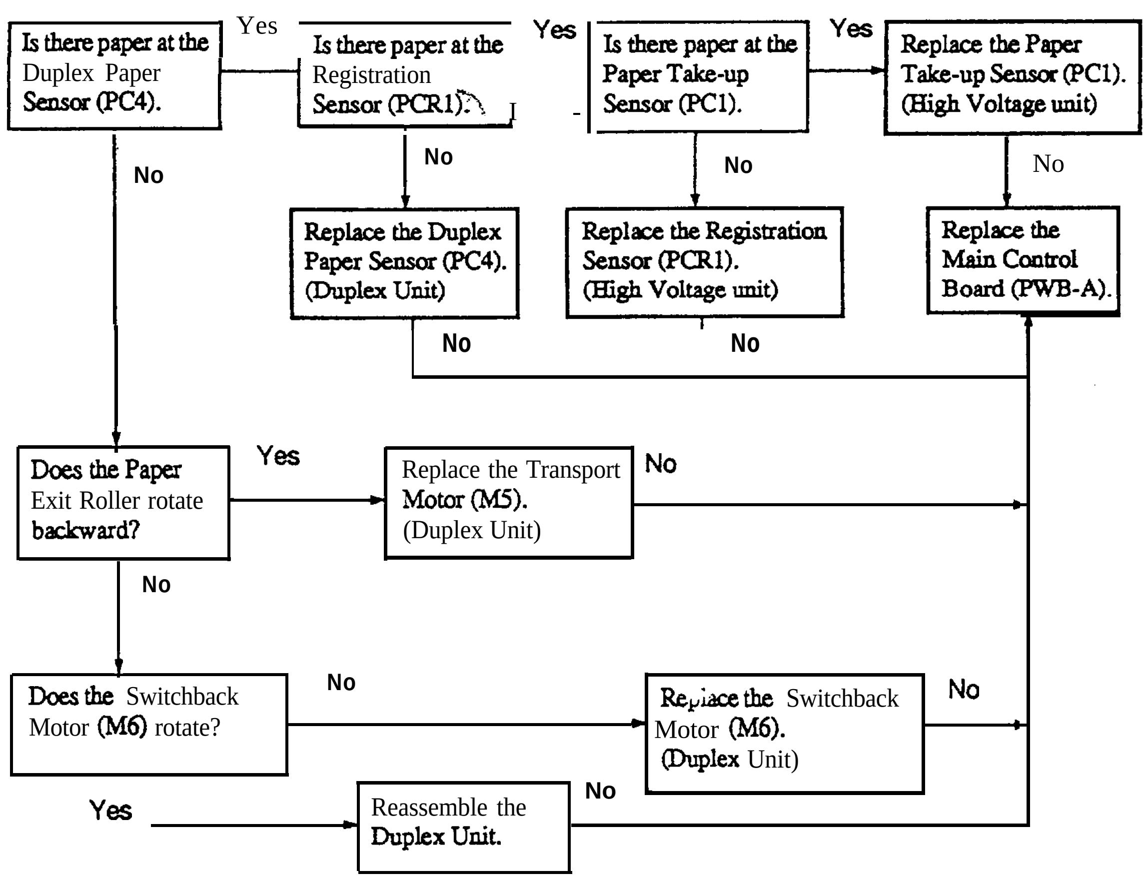
2-2. JAM2



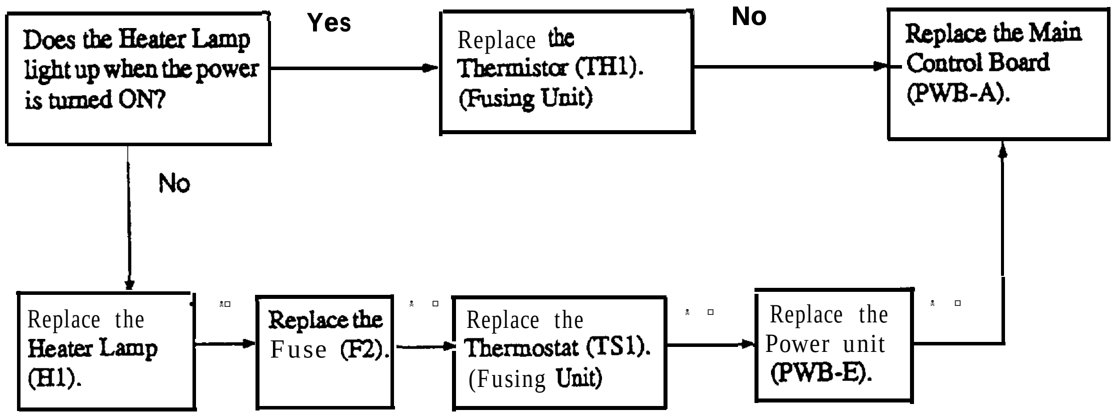
2-3. JAM3



2-4. JAM4

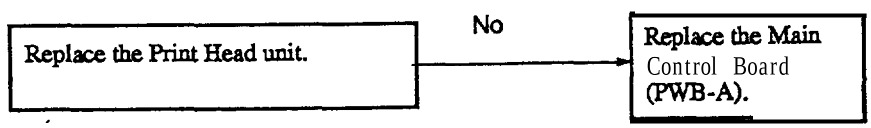


2-5. Fusing Unit malfunction

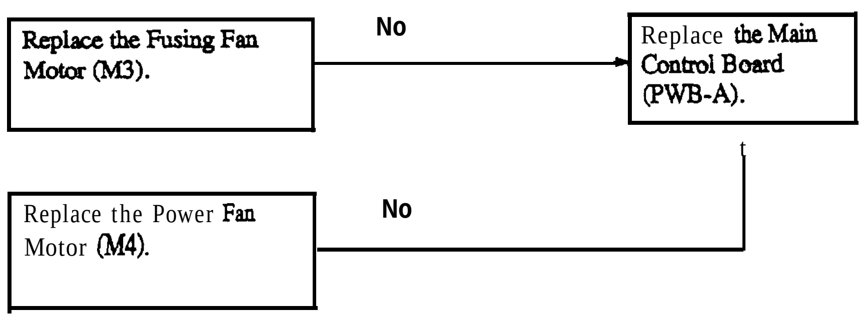


2-6. Laser malfunction (Refer to section 2-7. Polygon Motor malfunction)

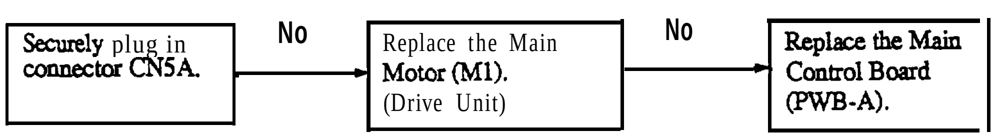
2-7. Polygon Motor malfunction



2-8. Fan Motor malfunction

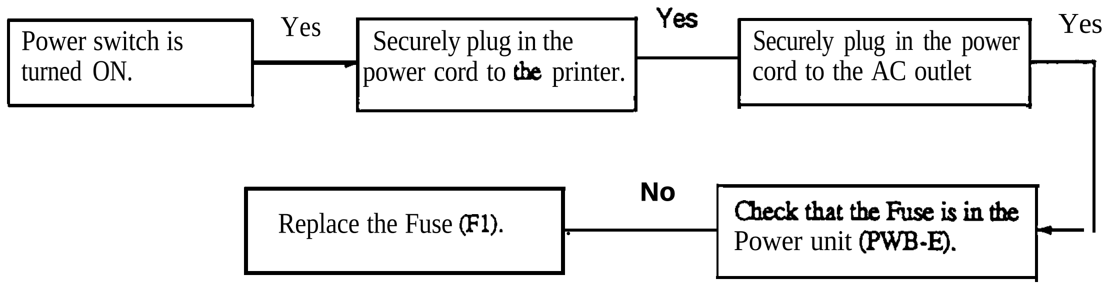


'2-9. Main Motor malfunction

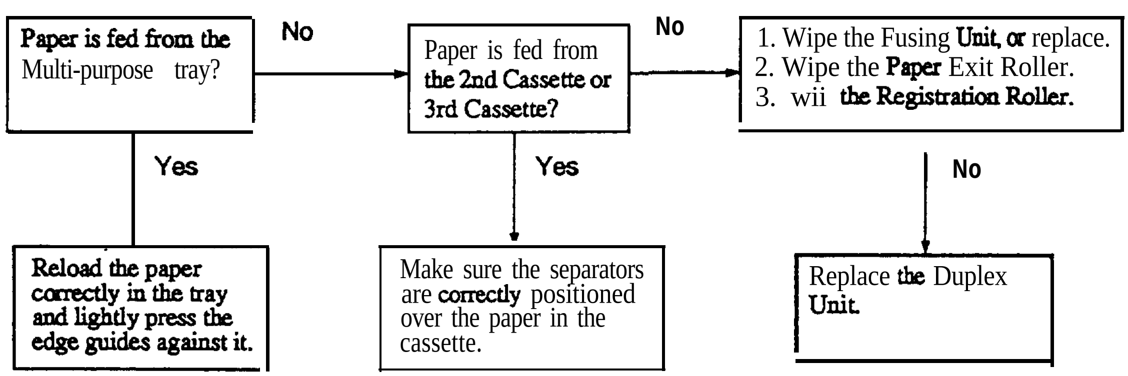


3. OTHER DETECTED TROUBLE

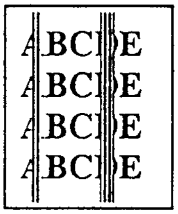
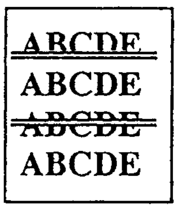
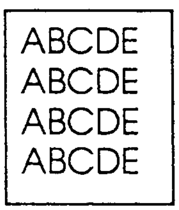
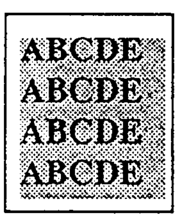
3-1. No Power

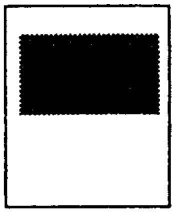
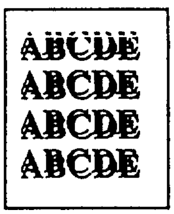


3-2. Skew



4. IMAGE QUALITY TROUBLE

Symptom	Cause	Action
Black/ White lines 	Dust, lint in the optical system	Clean the Print Head unit window. Replace the Print Head unit.
	Dust, lint in the Transfer unit	Wipe the surface of the Transfer Roller.
	Scratch on the PC Drum	Replace the Imaging Cartridge.
Horizontal lines 	Dust on the gear	Clean the Gear. Replace the Drive Unit.
	Uneven Polygon Motor	Replace the Print Head.
Low Image Density 	Poor image transfer	Replace the High Voltage unit (PWB-F).
	Toner empty	Change the Imaging Cartridge.
Foggy background 	Defective PC Drum	Replace the High Voltage unit (PWB-F).
	End of PC Drum life	Replace the Imaging Cartridge.

Symptom	Cause	Action
No Image (Blank/ Black) 	High developing bias	Replace the High Voltage unit (PWB-E). Replace the Imaging Cartridge.
	Low developing bias	Replace the High Voltage unit (PWB-E). Change the Imaging Cartridge.
Offset Image 	Improper transfer	Clean the Transfer unit or the Fusing unit.
	Improper transport	Wipe the dust off of the Fusing Roller.

micro@ac3008 0993-a021 toshiba

np

Tue Am-16 14:02:02 1996

NeWSprint 2.5 Rev B (J 2.5 Rev B)
Openwin library 3
NeWSprint interpreter 210.0

Print Messages ,

Broken Pipe

#0993 PARTS MANUAL (MINOLTA-QMS)

PREFACE 前書き

1. The part numbers listed in Parts Manual are those which were assigned to the parts making up the machine at the time the machine was originally introduced onto the market.

2. Parts whose numbers are preceded by an asterisk in the Index Column on the List Page are parts to be used in only certain market areas. Therefore, please check the number in the Area column on the List Page and then compare it with the numbers given in the Area Chart on page II to find out which part number is applicable to your own area.
NOTE: Parts for only certain Market Areas: The part numbers for these parts vary according to market area. In other cases, these parts are used in only restricted areas.

3. The Index Number on the List Page is composed of two numbers and two letters. Generally, only A is used as the first letter of the two letters. However, sometimes B, C, D, etc.are used when one part in the illustration, such as an electrical part or a part which varies according to market ares, has two or more part numbers. The second of the Iwo letters represents the modification history of that part.

4. The Area Number is listed in the Area Column for only those parts used in certain market areas. This Area Number represents the area listed opposite to it in the Chart given on Page II. Parts having no Area Number listed in the Area Column can be used in all market areas.

5. In the exploded views in this parts manual parts (Screws & Washes, etc...) which are indicated with a “four-digit’ numbers are listed in numerical order in the section ‘SCREWS AND WASHERS. Please check these "four-digit" numbers with the part numbers ("ten-digit” number) which should be used for ordering the parts.

6. All parts numbers consist of "ten-digits" which should all be quoted when ordering a part. The price of parts can be obtained by referring to the “Parts Price List’ which is separately issued.

7. All information contained in this parts manual is subject to change.

1. パーツマニュアルには、販売当初の機械をしている部品が記載されています。

2. リスト部の表示番号に※印がある部品は仕向部品ですので、地域No.をIIページの地域No.対比表で照合して、国内の部品番号を使用してください。
注）仕向部品………地域により部品番号が異なる、または、一部地域にだけ使用されている部品。

3. リスト部の表示番号は、部品図の番号をあらわす２桁の数字と２桁の補助記号より構成されています。
補助記号の１桁目は、一般にはＡだけですが、仕様部品、電気部品のように１つの部品図で複数の部品番号をあらわしている場合にＡ．Ｂ．Ｃ．…となっています。補助記号の２桁目は部品の変更経歴をあらわしています。

4. リスト部の地域No.は仕向部品にだけ記載されており、IIページでその部品の使用されている地域をあらわしています。地域No.のないものは全地域使用部品です

5. ネジ・ワッシャー類は、数字４桁の表示番号を使用しています。ネジ・ワッシャー部で照合の上、10桁の部品番号を使用してください。

6. 部品番号は10桁で構成されています。注文は必ず10桁の部品番号を使用してください。

7. このパーツマニュアルの内容は予告なく変更されることがあります。

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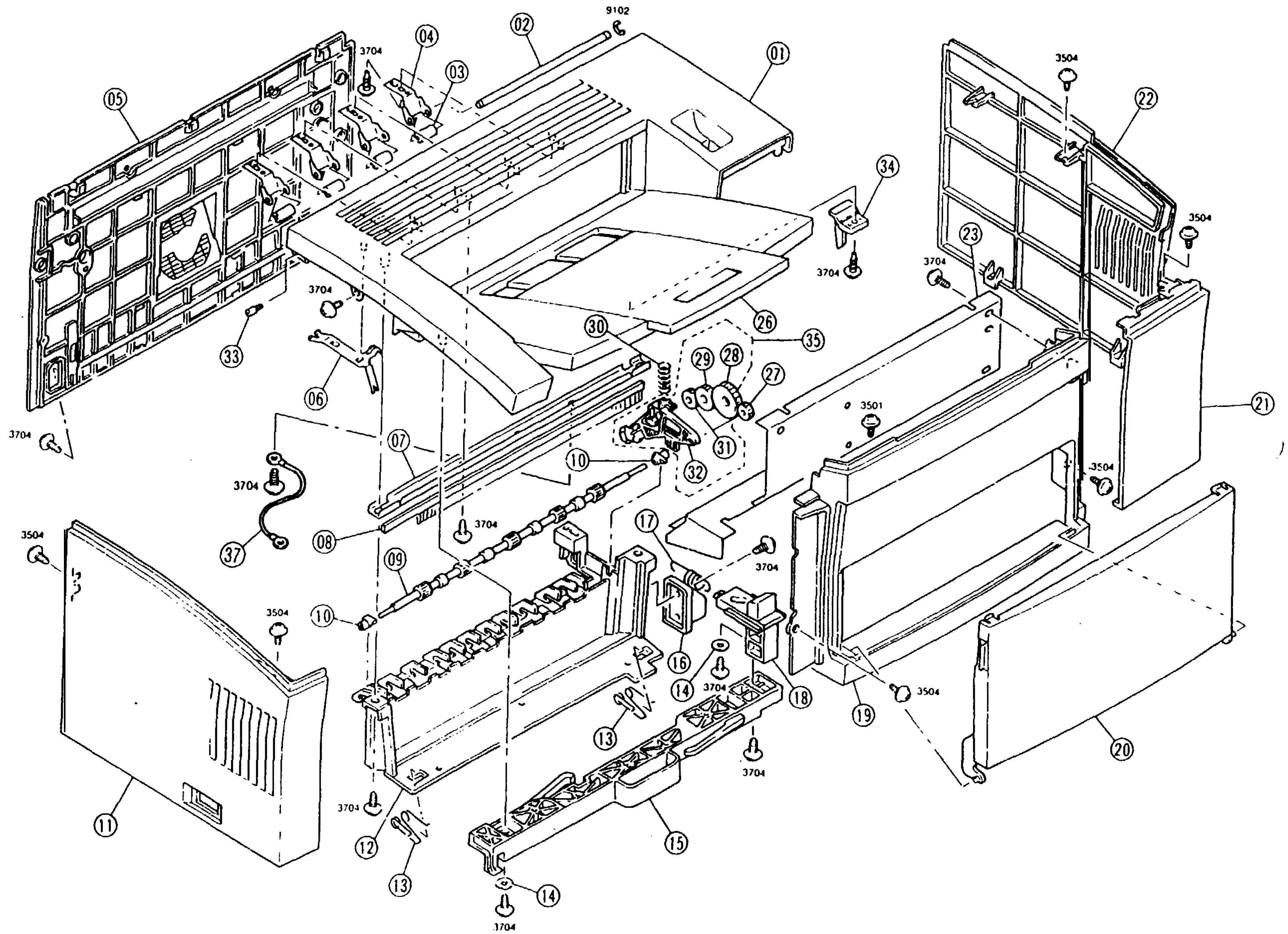
AREA CHART 地域No.対比表

AREA No. 地域 No.	AREA 該当地域	(JAPAN 国内)	AREA No. 地域 No.	AREA 該当地域	(JAPAN 国内)

We recommend that you cross out from your Parts Manuals those parts numbers which do not apply to your area so that no error is made when ordering parts.
注文時の部品番号まちがいを防ぐために，マニュアル内の国内以外の部品番号をあらかじめ削除しておくことをおすすめします。

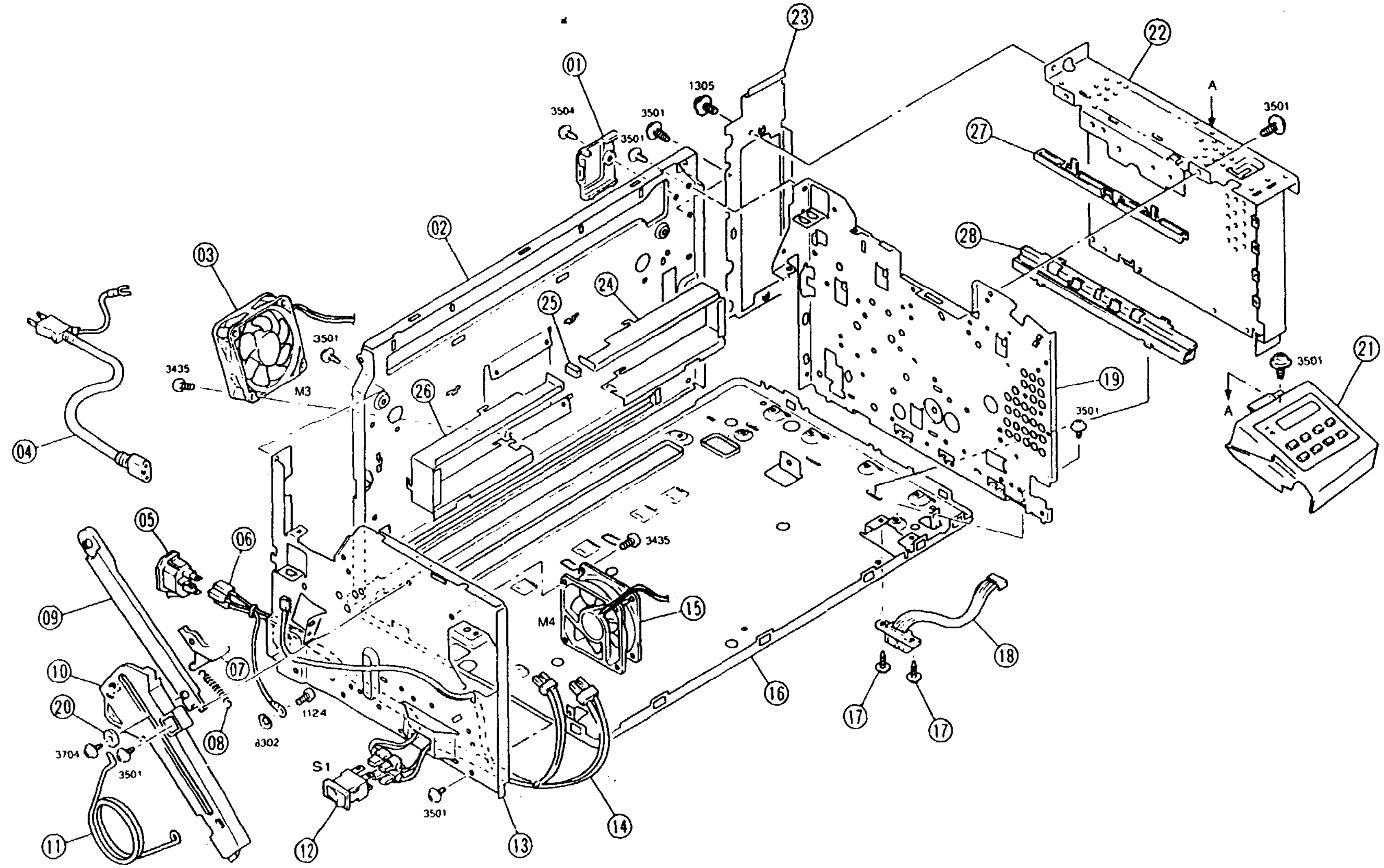
THIS PARTS MANUAL IS EFFECTIVE WITH MACHINES SERIALLY NUMBERED XX2001(PRINTER) XX2001(3RD BIN) XX2001(DUPLEX) AND ONWARDS.
このパーツマニュアルは，機械番号XX2001(PRINTER) XX2001(3RD BIN) XX2001(DUPLEX)以降を対象に作成したものです。

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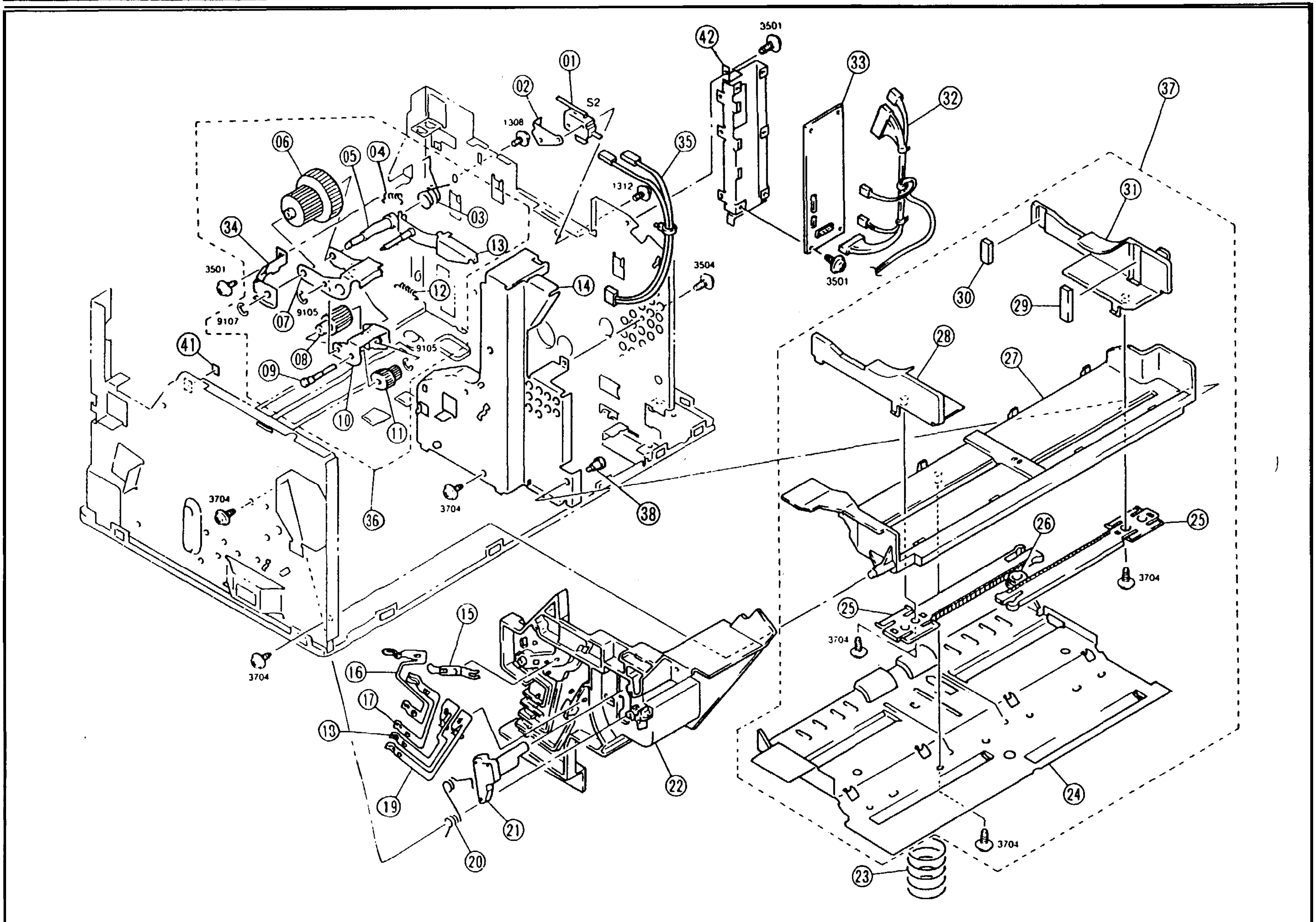
INDEX 表示番号	PART NO. 部品番号	PART NAME 部品名称	QTY 員数	AREA 地域	REMARKS 備考
01AA	0993-1001-02	'OP COVER ｳｴｶﾊﾞｰ	1		
02AA	0993-3222-01	;HAFT ｼｬﾌﾄ	1		
03AA	0993-3220-01	ROLL ﾛｰﾙ	4		
04AA	0993-3221-01	HOLDER ﾎﾙﾀﾞｰ	4		
05AA	0993-1010-03	REAR COVER ｳｼﾛｶﾊﾞｰ	1		
06AA	0993-3214-01	GROUND PLATE ｱｰｽﾊﾞﾝ	1		
07AA	0993-1015-01	REINFORCE PLATE ﾎｷｮｳﾊﾞﾝ	1		
08AA	0993-3213-01	NEUTRALIZING BRUSH ESｸﾘｰﾅｰ	1		
09AA	0993-3203-01	ROLLER ﾛｰﾗｰ	1		
10AA	0993-3204-01	BUSHING ﾊﾞｸｳｹ	2		
11AA	0993-1003-01	LEFT COVER ﾋﾀﾞﾘｶﾊﾞｰ	1		
12AA	0993-1620-02	COVER	1		
13AA	0993-1014-01	:&ION SPRING ﾄｼﾞﾘｽﾌﾟﾘﾝｸﾞ	2		
14AA	1200-1521-02	WASHER ﾜｯｼｬｰ	3		
15AA	0993-2017-01	LOCK LEVER ﾛｯｸﾚﾊﾞｰ	1		
16AA	0993-1016-02	LEVER ﾚﾊﾞｰ	1		
17AA	0993-2009-01	TENSION SPRING ﾆｯﾊﾟﾘｽﾌﾟﾘﾝｸﾞ	1		
18AA	0993-1021-01	LEVER ﾚﾊﾞｰ	1		
19AA	0993-1004-03	FRONT COVER ﾏｴｶﾊﾞｰ	1		
20AA	0993-1005-01	TRAY ｷｭｳｼトﾚｲ	1		
21AA	0993-1009-01	FRONT COVER-RT ﾏｴﾐｷﾞｶﾊﾞｰ	1		
22AA	0993-1002-02	RIGHT COVER ﾐｷﾞｶﾊﾞｰ	1		
23AA	0993-2304-01	COVER ｶﾊﾞｰ	1		
2bAA	0993-1006-01	TRAY ﾊｲｼﾄﾚｲ	1		
27AA	0993-3208-01	GEAR 14T ｷﾞｱｰ	1		
28AA	0993-3209-01	GEAR 39T ｷﾞｱｰ	1		
29AA	0993-3210-01	GEAR 26T ｷﾞｱｰ	1		
30AA	0993-3205-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ	1		
31AA	0993-3211-01	GEAR 17T ｷﾞｱｰ	1		
32AA	0993-3206-01	LEVER ﾚﾊﾞｰ	1		
33AA	1100-1212-04	SHOULDER SCREW ﾀﾞﾝﾈｼﾞ	1		
34AA	0993-1011-01	ACTUATOR ｱｸﾁｭｴｰﾀｰ	1		
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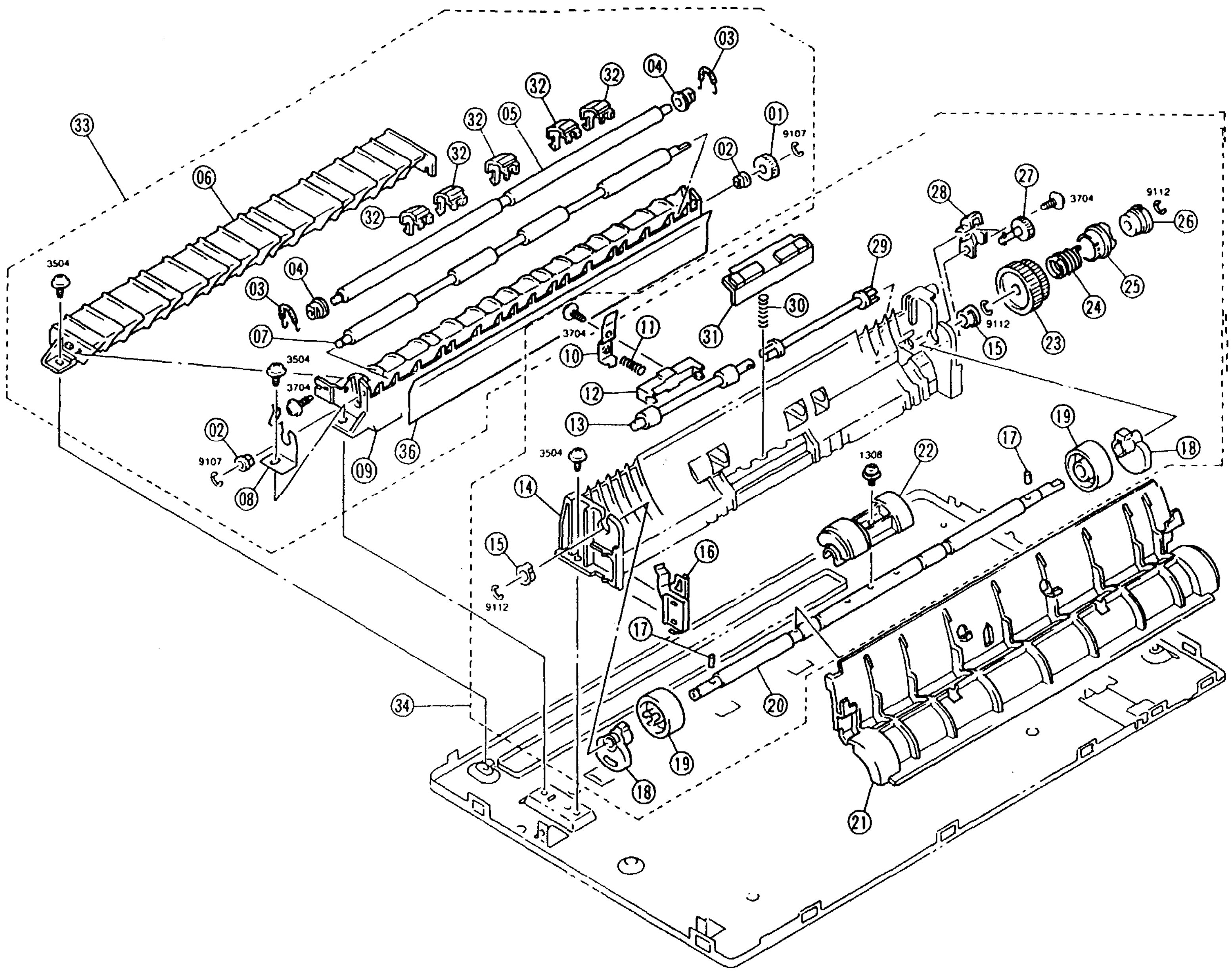

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INDEX 表示番号	PART NO. 部品番号	PART NAME 部品名称		QTY 員数	AREA 地域	REMARKS 備考
01AA	)993-1017-01	COVE: カバー		1		
02AA	)993-2004-02	REAR FRAME ウシロフレーム		1		
03AA	)993-6104-01	FAN MOTOR ファンモーター	(M3)	1		
*04AA	)381-4510-11	POWER CORD デンゲンコード		1		
*04BA	)381-4310-31	POWER CORD デンゲンコード		1		
*04CA	)381-4310-71	POWER CORD デンゲンコード		1		
05AA	)383-5920-13	SOCKET ソケット		1		
06AA	)993-6801-01	HARNESS ハーネス		1		
07AA	)993-2012-01	LEVER レバー		1		
08AA	)993-2013-01	TENSION SPRING ヒッパリスプリング		1		
09AA	)993-2014-01	STOPPER ストッパー		1		
10AA	)993-2016-01	HOLDER ホルダー		1		
11AA	)993-2015-02	TORSION SPRING ネジリスプリング		1		
12AA	)993-6301-01	SUITCH スイッチ	(S1)	1		
13AA	)993-2003-02	LEFT FRAME ヒダリフレーム		1		
14AA	)993-6802-02	HARNESS ハーネス		1		
15AA	)993-6103-01	FAN MOTOR ファンモーター	(M4)	1		
16AA	)993-2001-02	BASE PLATE ダイバン		1		
17AA	)978-2067-01	SHOULDER SCREW ダンネジ		2		
18AA	)993-6824-01	HARNESS ハーネス		1		
19AA	)993-2002-01	RIGHT FRAME ミギフレーム		1		
20AA	L200-1521-02	WASHER ワッシャー		1		
21AA	)993-0109-02	CONTROL PANEL ソウサパネル		1		
224A	)993-2601-02	SHIELD PLATE シールドプレート		1		
23AA	)993-2602-02	REAR FRAME-RT ウシロミギフレーム		1		
24AA	)993-2042-02	DUCT-RT ミギダクト		1		
25AA	)993-2044-01	SEAL C-L		1		
26AA	)993-2043-02	DUCT-LFT ヒダリダクト		1		
27AA	)993-2606-01	GUIDE RAIL ガイドレール		1		
28AA	)993-2607-01	GUIDE RAIL ガイドレール		1		

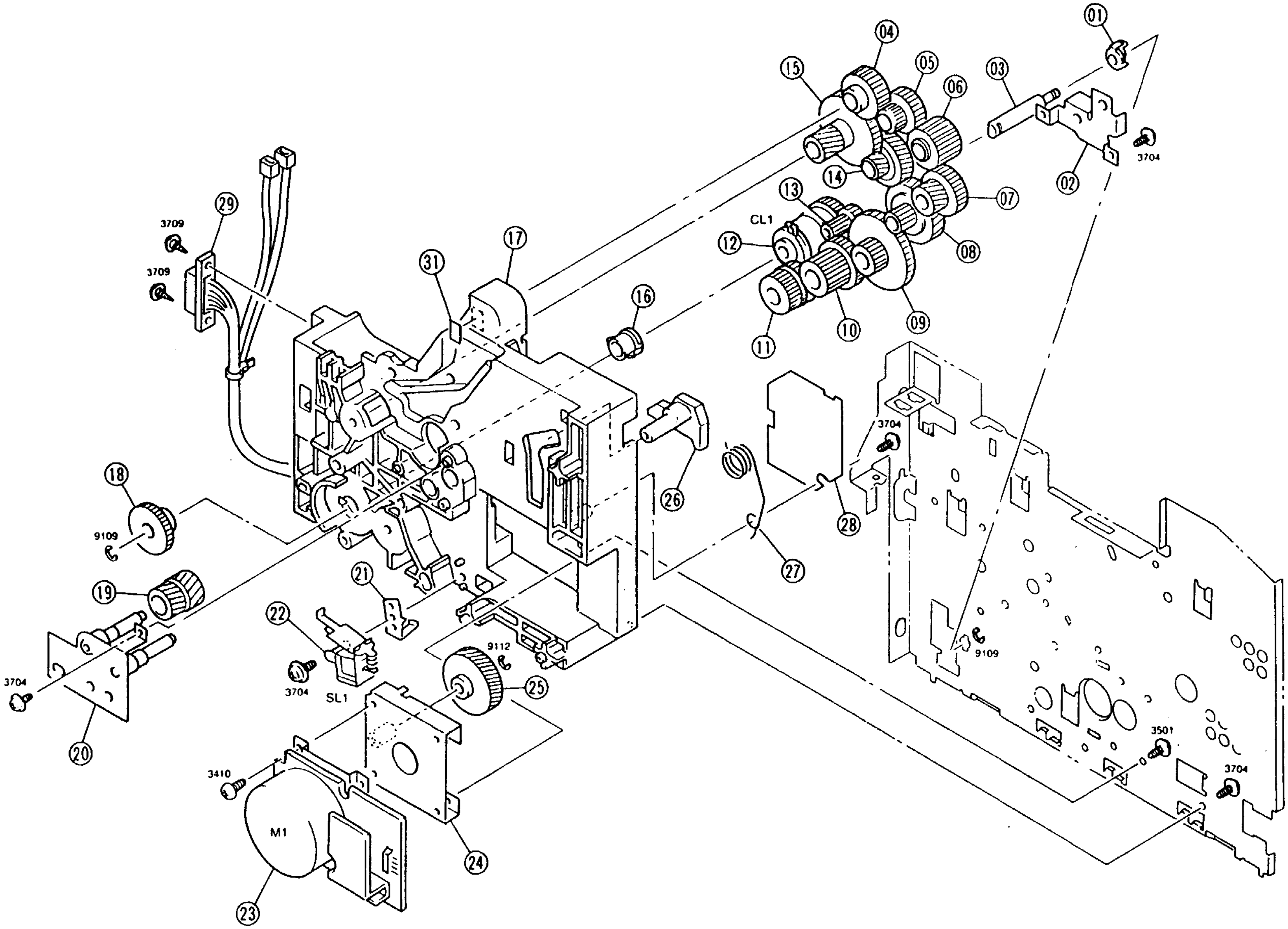
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01AA	9331-2310-21	MICROSWITCH ﾏｲｸﾛｽｲｯﾁ	(S2	1		
02AA	0957-2320-01	BRACKET ﾄﾘﾂｹﾊﾞﾝ		1		
03AA	0993-2533-01	TORSION SPRING ﾈｼﾞﾘｽﾌﾟﾘﾝｸﾞ		1		
04AA	0993-2531-02	TENSION SPRING ﾋｯﾊﾟﾘｽﾌﾟﾘﾝｸﾞ		1		
OSAA	0993-2518-01	STUD ｼﾞｸ		1		
06AA	0993-2517-01	GEAR 29/60T ｷﾞｱｰ		1		
07AA	0993-2525-01	PLATE ﾌﾟﾚｰﾄ		1		
08AA	0993-2516-01	GEAR 24T ｷﾞｱｰ		1		
09AA	0993-2538-01	sruo ｼﾞｸ		1		
10AA	0993-2537-01	PLATE ﾌﾟﾚｰﾄ		1		
11AA	0993-2540-01	GEAR 18/23T ｷﾞｱｰ		1		
12AA	0993-2539-01	TENSION SPRING ﾋｯﾊﾟﾘｽﾌﾟﾘﾝｸﾞ		1		
13AA	0993-0203-13	AXLE PLATE ｼﾞｸﾊﾞﾝ		1		
14AA	0993-2005-01	FRAME ﾌﾚｰﾑ		1		
15AA	0993-2022-01	TERMINAL ﾀｰﾐﾅﾙ		1		
16AA	0993-2021-01	TERMINAL ﾀｰﾐﾅﾙ		1		
17AA	0993-2024-01	TERMINAL ﾀｰﾐﾅﾙ		1		
18AA	0993-2025-01	TERMINAL ﾀｰﾐﾅﾙ		1		
19AA	0993-2023-01	TERMINAL ﾀｰﾐﾅﾙ		1		
20AA	0993-2034-02	TORSION SPRING ﾈｼﾞﾘｽﾌﾟﾘﾝｸﾞ		1		
21AA	0993-2026-01	GUIDE ｶﾞｲﾄﾞ		1		
22AA	0993-2020-02	GUIDE ｶﾞｲﾄﾞ		1		
23AA	0993-3016-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ		1		
24AA	0993-0752-01	LIFTING PLATE ｵｼｱｹﾞﾊﾞﾝ		1		
25AA	0993-3036-02	RACK GEAR ﾗｯｸｷﾞｱｰ		2		
26AA	0957-3104-01	GEAR 14T ｷﾞｱｰ		1		
27AA	0993-3003-03	GUIDE ｶﾞｲﾄﾞ		1		
28AA	0993-3030-02	GUIDE-LFT ﾋﾀﾞﾘｶﾞｲﾄﾞ		1		
29AA	0993-3033-01	REGULATOR ｷｾｲｻﾞｲ		1		
30AA	0993-3032-01	REGULATOR ｷｾｲｻﾞｲ		1		
31AA	0993-3029-02	GUIDE-RT ﾐｷﾞｶﾞｲﾄﾞ		1		
32AA	0993-6805-02	HARNESS ﾊｰﾈｽ		1		
*33AA	0993-0110-02	PW BOARD-A ﾌﾟﾘﾝﾄｷﾊﾞﾝ A	(PUB-A	1	.000	
*33BA	0993-0111-02	PW BOARD-A ﾌﾟﾘﾝﾄｷﾊﾞﾝ A	(PWB-A)	1	'000	
34AA	0993-2530-01	HOLD PLATE ﾎｼﾞﾊﾞﾝ		1		
35AA	0993-6818-01	HARNESS ﾊｰﾈｽ		1		
36AA	0993-0755-02	DOCKING PLATE ASSY ﾄﾞｯｷﾝｸﾞﾌﾟﾚｰﾄｱｯｾﾝ		1		
37AA	0993-0361-02	PAPER GUIDE ASSY ﾍﾟｰﾊﾟｰｶﾞｲﾄﾞｱｯｾﾝ		1		
38AA	4157-3615-01	SHOULDER SCREW ﾀﾞﾝﾈｼﾞ		1		
41AA	1052-7257-01	LABEL YELLOW ﾗﾍﾞﾙ ｷｲﾛ		1		
42AA	3993-2608-02	BRACKET ﾄﾘﾂｹﾊﾞﾝ	PWB-A	1		

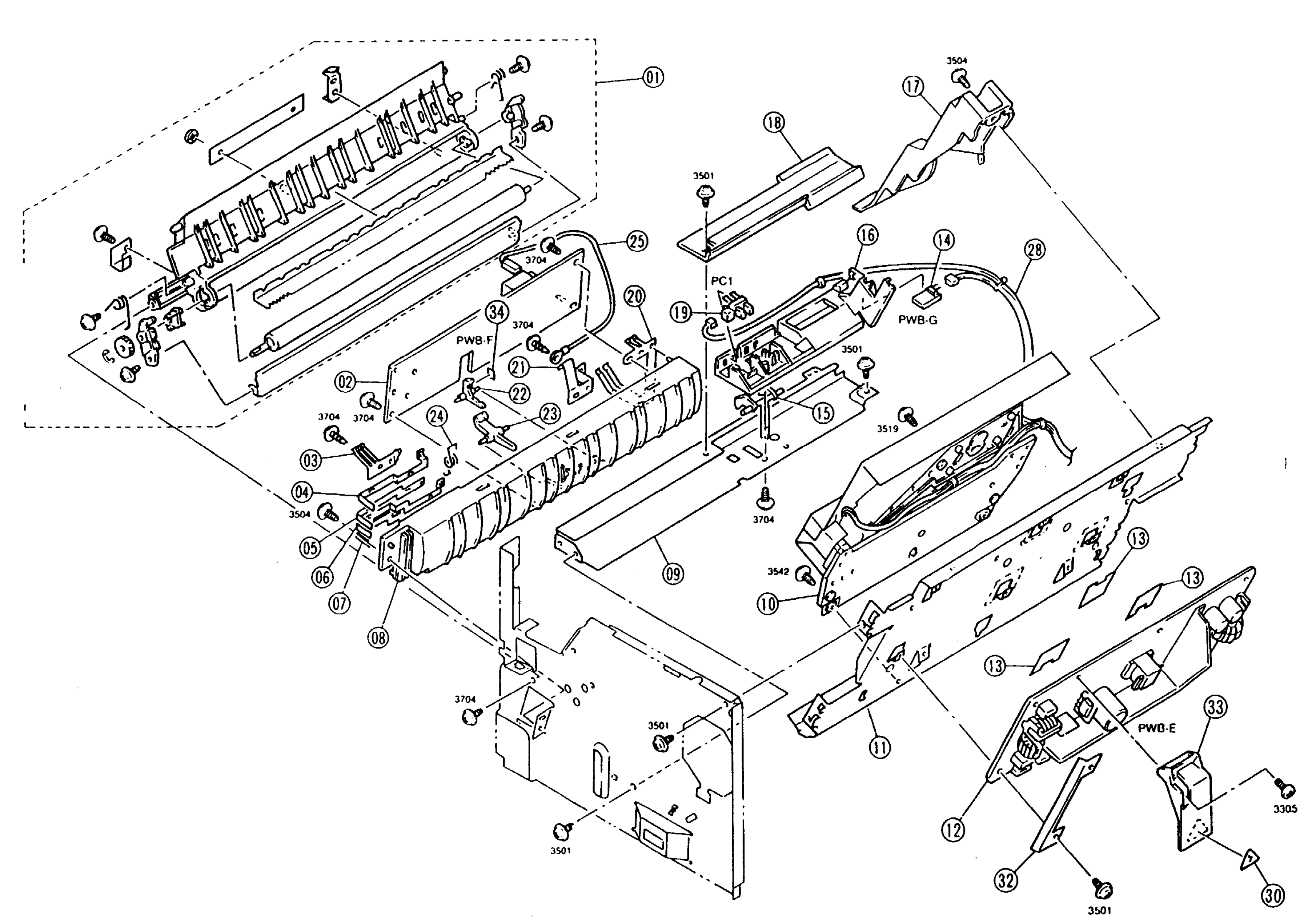

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01AA	0993-3510-01	GEAR 25T ギアー	1		
02AA	0993-3520-01	BUSHING ジクウケ	2		
03AA	0993-3518-01	TENSION SPRING ヒッパリスプリング	2		
04AA	0993-3511-01	BUSHING ジクウケ	2		
05AA	0993-3508-01	ROLLER ローラー	1		
06AA	0993-3504-01	GUIDE ガイド	1		
07AA	0993-3509-01	ROLLER ローラー	1		
08AA	0993-3512-01	GROUND PLATE アースバン	1		
09AA	0993-3503-01	GUIDE ガイド	1		
10AA	0993-3035-01	SET PLATE オサエバン	1		
11AA	0993-3018-01	PRESSURE SPRING アッシュクスプリング	1		
12AA	0993-3023-01	SUPPORT サポート	1		
13AA	0993-3002-01	ROLLER ローラー	1		
14AA	0993-3028-02	GUIDE ガイド	1		
15AA	0993-3009-01	BUSHING ジクウケ	2		
16AA	0993-3024-01	PLATE SPRING プレートスプリング	1		
17AA	0957-3040-01	PIN ピン	2		
18AA	0993-3008-01	CAM カム	2		
19AA	0993-3006-01	ROLL ロール	2		
20AA	0993-3020-02	SHAFT シャフト	1		
21AA	0993-3501-05	GUIDE ガイド	1		
22AA	0993-3001-01	ROLLER ローラー PAPER TAKE-UF キュウシ	1		
23AA	0993-3010-01	GEAR 45/47T ギアー	1		
24AA	0993-3039-01	CLUTCH SPRING クラッチスプリング	1		
25AA	0957-3015-01	RATCHET ラチェット	1		
26AA	0993-3022-01	BOSS ボス	1		
27AA	)993-3014-02	GEAR 20T ギアー	1		
28AA	)993-3013-01	BUSHING ジクウケ	1		
29AA	)993-3021-02	JOINT ジョイント	1		
30AA	)993-3017-02	PRESSURE SPRING アッシュクスプリング	1		
31AA	)993-0751-01	SEPARATOR サバキダイ	1		
32AA	)993-3521-01	COVER カバー	5		
33AA	)993-0411-01	PAPER TRANSPORT UNI ハンソウユニット	1		
34AA	)993-0401-02	PAPER TAKE-UP UNIT キュウシユニット	1		
36AA	)993-3523-01	SHEET シート	1		

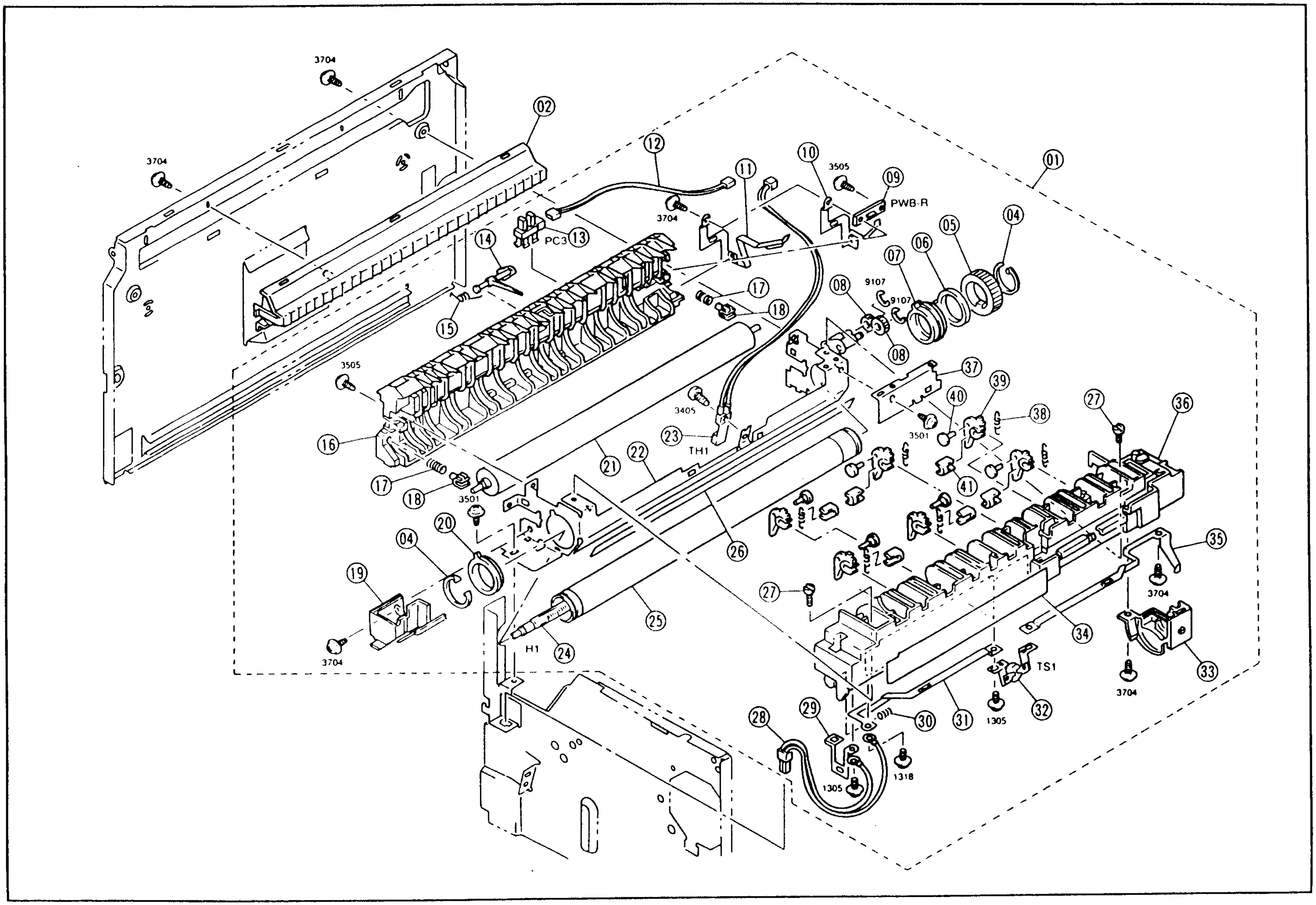

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01AA	)993-2523-01	BUSHING ｼﾞｸｳｹ	1		
02AA	)993-2521-01	COVER ｶﾊﾞｰ	1		
03AA	)993-2529-01	STUD ｼﾞｸ	1		
04AA	)993-2515-01	GEAR 38T ｷﾞｱｰ	1		
05AA	)993-2519-01	GEAR 22/31T ｷﾞｱｰ	1		
06AA	ı993-2508-01	GEAR 33T ｷﾞｱｰ	1		
07AA	ı993-2506-01	GEAR 18/39T ｷﾞｱｰ	1		
08AA	ı993-2503-01	GEAR 17/75T ｷﾞｱｰ	1		
09AA	ı993-2510-01	GEAR 27/63T ｷﾞｱｰ	1		
10AA	ı993-2511-01	GEAR 33/34T ｷﾞｱｰ	1		
11AA	)993-2514-01	GEAR 25/31T ｷﾞｱｰ	1		
12AA	)993-6205-01	CLUTCH (CL1) ｸﾗｯﾁ	1		
13AA	)993-2512-01	GEAR 15/21T ｷﾞｱｰ	1		
14AA	)993-2504-01	GEAR 16/70T ｷﾞｱｰ	1		
15AA	)993-2505-01	GEAR 23/60T ｷﾞｱｰ	1		
16AA	)993-2524-01	BUSHING ｼﾞｸｳｹ	1		
17AA	0993-2501-13	COVER ｶﾊﾞｰ	1		
18AA	0993-2513-01	GEAR 44T ｷﾞｱｰ	1		
19AA	0993-2507-01	GEAR 19/20T ｷﾞｱｰ	1		
20AA	ı993-0202-01	BRACKET ﾄﾘﾂｹﾊﾞﾝ	1		
21AA	ı993-2536-01	GROUND PLATE ｱｰｽﾊﾞﾝ	1		
22AA	)993-6204-01	SOLENOID (SL1) ｿﾚﾉｲﾄﾞ	1		
23AA	)993-6101-01	MOTOR (M1) ﾓｰﾀｰ	1		
24AA	)993-0201-01	BRACKET ﾄﾘﾂｹﾊﾞﾝ	1		
25AA	)993-0151-01	GEAR 77T ｷﾞｱｰ	1		
26AA	1993-2026-01	GUIDE ｶﾞｲﾄﾞ	1		
27AA	)993-2035-01	TORSION SPRING ﾈｼﾞﾘｽﾌﾟﾘﾝｸﾞ	1		
28AA	)993-2040-01	BRACKET ﾄﾘﾂｹﾊﾞﾝ	1		
29AA	)993-6825-01	HARNESS ﾊｰﾈｽ	1		
31AA	1052-7257-01	LABEL YELLOW ﾗﾍﾞﾙ ｷｲﾛ	1		

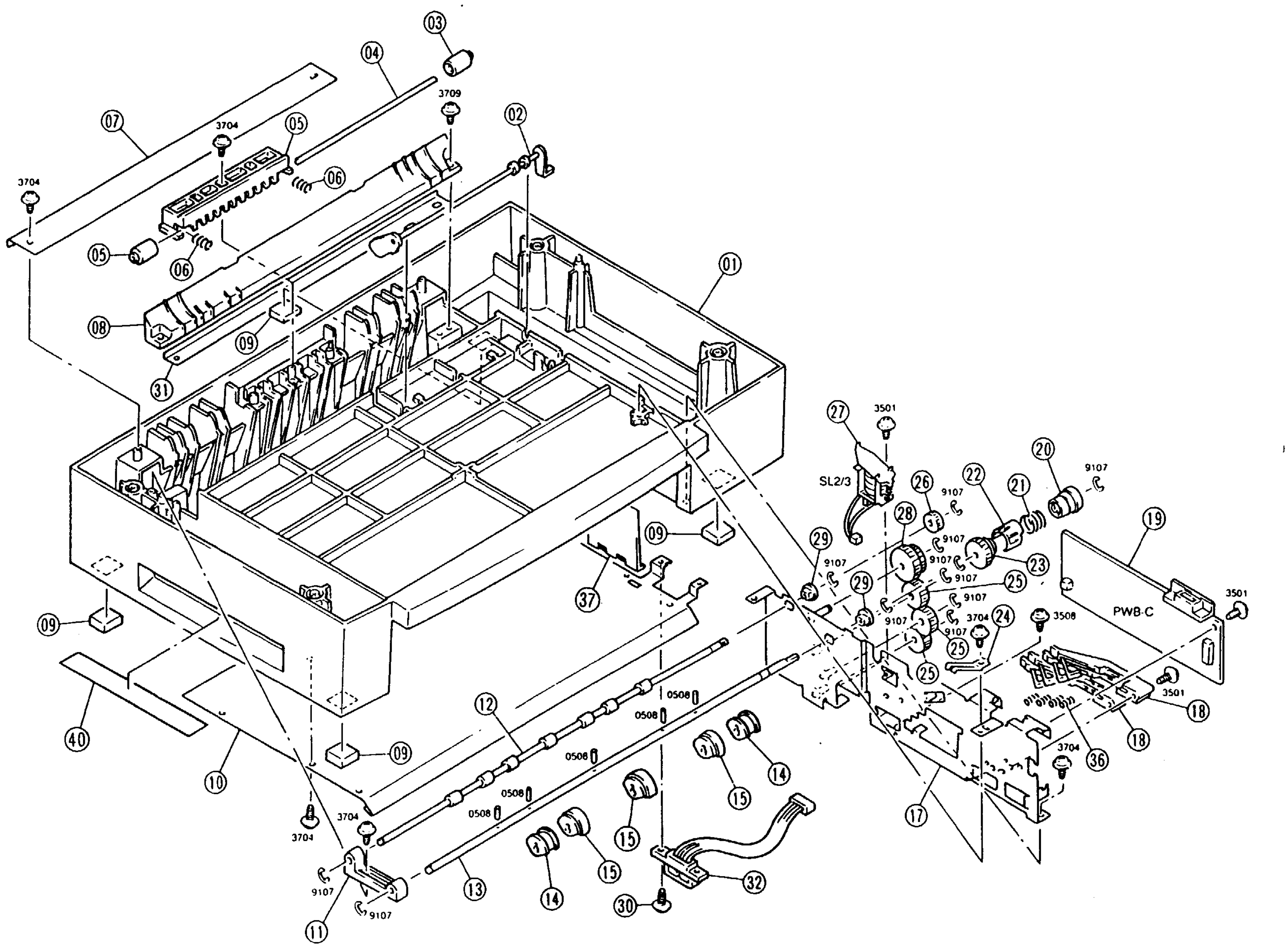
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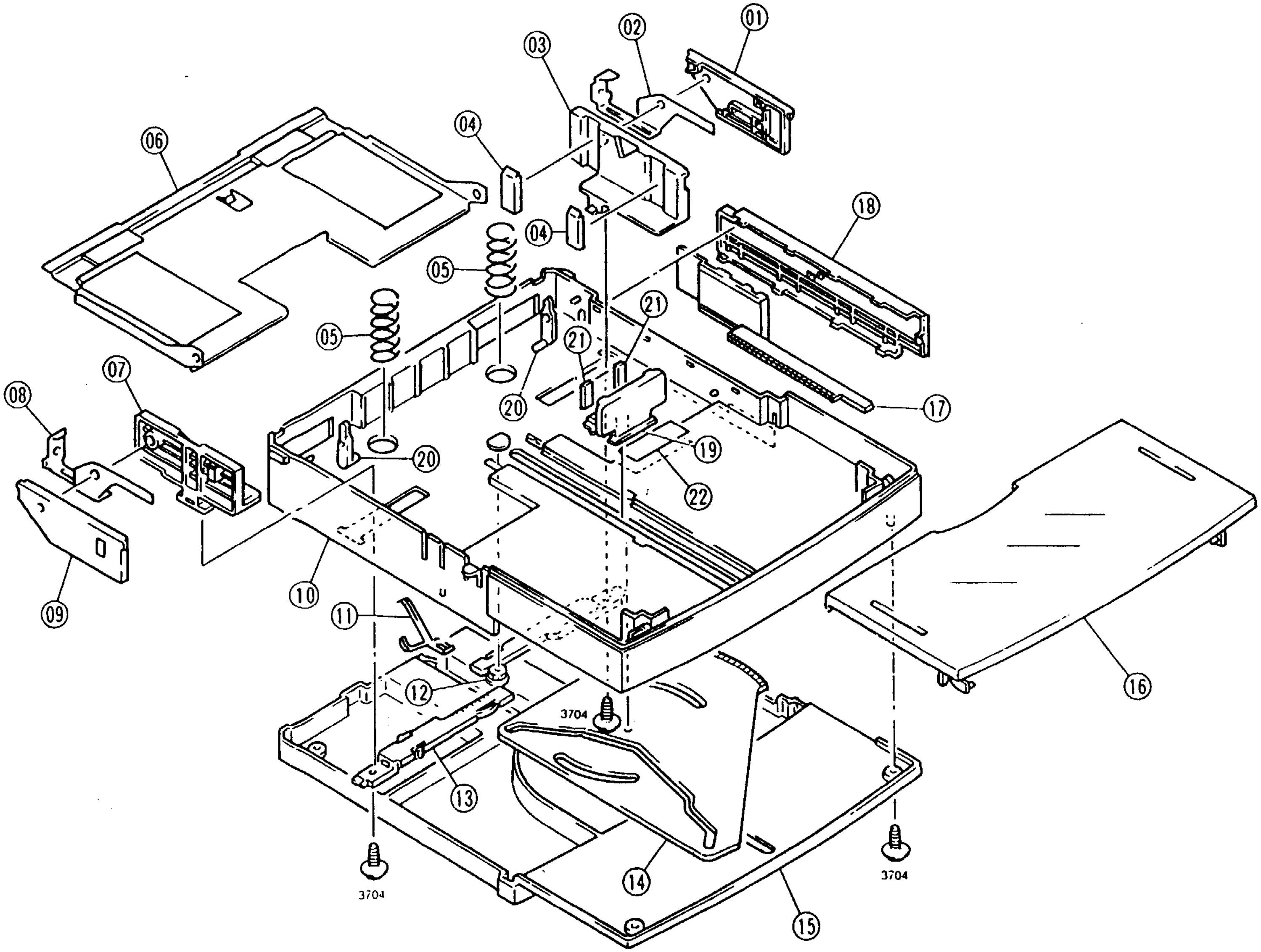
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01AA	0993-0331-04	TRANSFER UNIT ﾃﾝｼｬﾛｰﾗｰﾕﾆｯﾄ	1								
02AA	0993-6203-01	PWB-HV(WITH IC) (PWB-F) ｺｳｱﾂｷﾊﾞﾝ	1								
03AA	0993-3513-01	TERMINAL ﾀｰﾐﾅﾙ	1								
04AA	0993-3514-01	TERMINAL ﾀｰﾐﾅﾙ	1								
05AA	0993-3515-01	TERMINAL ﾀｰﾐﾅﾙ	1								
06AA	0993-3516-01	TERMINAL ﾀｰﾐﾅﾙ	1								
07AA	0993-3517-01	TERMINAL ﾀｰﾐﾅﾙ	1								
08AA	0993-3502-01	GUIDE ｶﾞｲﾄﾞ	1								
09AA	0993-2038-01	BRACKET ﾄﾘﾂｹﾊﾞﾝ	1								
10AA	0993-0534-03	PRINT HEAD UNIT ﾌﾟﾘﾝﾄﾍｯﾄﾞﾕﾆｯﾄ	1								
11AA	0993-2018-01	MOUNTING PLATE ﾄﾘﾂｹﾊﾞﾝ	1								
*12AA	0993-6201-01	PWB-PU(WITH IC) (PWB-E) ﾃﾞﾝｹﾞﾝｷﾊﾞﾝ	1	0524							
*12BA	0993-6202-01	PWB-PU(WITH IC) ﾃﾞﾝｹﾞﾝｷﾊﾞﾝ	1	2612							
13AA	0993-2041-01	SHEET ｼｰﾄ	3								
14AA	0993-0107-01	PW BOARD-G(WITH IC) (PWB-G) ﾌﾟﾘﾝﾄｷﾊﾞﾝ G	1								
15AA	0993-3027-01	ACTUATOR ｱｸﾁｪｰﾀｰ	1								
16AA	0993-2030-01	HOLDER ﾎﾙﾀﾞｰ	1								
17AA	0993-2033-01	COVER ｶﾊﾞｰ	1								
18AA	0993-2930-03	COVER ｶﾊﾞｰ	1								
19AA	9335-1410-31	PHOTO INTERRUPTER (PC1) ﾌｫﾄｲﾝﾀﾗﾌﾟﾀｰ	1								
20AA	0993-4111-01	GROUND PLATE ｱｰｽﾊﾞﾝ	1								
21AA	0993-4115-01	TERMINAL ﾀｰﾐﾅﾙ	1								
22AA	0993-3506-01	ACTUATOR ｱｸﾁｪｰﾀｰ	1								
23AA	0993-3505-02	ACTUATOR ｱｸﾁｪｰﾀｰ	1								
24AA	0993-3507-01	TORSION SPRING ﾈｼﾞﾘｽﾌﾟﾘﾝｸﾞ	1								
25AA	0993-6817-01	HARNESS ﾊｰﾈｽ	1								
28AA	0993-6826-01	HARNESS ﾊｰﾈｽ	1								
30AA	0953-7409-01	LABEL ﾗﾍﾞﾙ	1								
32AA	0993-2309-01	COVER ｶﾊﾞｰ	1								
*33AA	0993-2308-01	COVER ｶﾊﾞｰ	1	0524							
34AA	0993-3524-01	SHIELD PLATE ｼｬｺｳｻﾞｲ	1								


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*01AA	0993-0341-06	FUSING UNIT ﾃｲﾁｬｸﾕﾆｯﾄ		1	0600	
*01BA	0993-0343-04	FUSING UNIT ﾃｲﾁｬｸﾕﾆｯﾄ		1	2520	
*01CA	0993-0345-04	FUSING UNIT ﾃｲﾁｬｸﾕﾆｯﾄ		1	2612	
02AA	0993-3216-02	GUIDE ｶﾞｲﾄﾞ		1		
04AA	0993-5529-01	C-RING Cﾘﾝｸﾞ		2		
05AA	0993-5512-01	GEAR 39T ｷﾞｱｰ		1		
06AA	0993-5537-01	BUSHING ｼﾞｸｳｹ		1		
07AA	0993-5533-01	BUSHING ｼﾞｸｳｹ		1		
08AA	0993-5524-01	GEAR 15T ｷﾞｱｰ		2		
09AA	0993-0105-01	PW BOARD-R(NO IC) ﾌﾟﾘﾝﾄｷﾊﾞﾝ R	(PWB-R)	1		
10AA	0993-5543-01	TERMINAL ﾀｰﾐﾅﾙ		1		
11AA	0993-5532-01	TERMINAL ﾀｰﾐﾅﾙ		1		
12AA	0993-6809-01	HARNESS ﾊｰﾈｽ		1		
13AA	9335-1410-31	PHOTO INTERRUPTER ﾌｫﾄｲﾝﾀﾗﾌﾟﾀｰ	(PC3)	1		
14AA	0993-5516-01	ACTUATOR ｱｸﾁｭｴｰﾀｰ		1		
15AA	0972-5519-01	TORSION SPRING ﾈｼﾞﾘｽﾌﾟﾘﾝｸﾞ		1		
16AA	0993-5505-15	FRAME-RR ｳｼﾛﾌﾚｰﾑ		1		
17AA	0993-5521-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ		2		
18AA	0993-5535-01	BUSHING ｼﾞｸｳｹ		2		
19AA	0993-5520-01	COVER ｶﾊﾞｰ		1		
20AA	0993-5534-01	BUSHING ｼﾞｸｳｹ		1		
21AA	0993-5502-01	FUSING ROLLER-LWR ｼﾀﾃｲﾁｬｸﾛｰﾗｰ		1		
22AA	0993-5504-01	FRAME-FNT ﾏｴﾌﾚｰﾑ		1		
23AA	0993-6702-01	THERMISTOR ｻｰﾐｽﾀｰ	(TH1)	1		
*24AA	0993-6501-01	TUBE LAMP ﾁｭｰﾌﾞﾗﾝﾌﾟ	(H1)	1	0600	
*24BA	0993-6502-01	TUBE LAMP ﾁｭｰﾌﾞﾗﾝﾌﾟ	(H1)	1	2520	
*24CA	0993-6503-01	TUBE LAMP ﾁｭｰﾌﾞﾗﾝﾌﾟ	(H1)	1	2612	
25AA	0993-5501-01	FUSING ROLLER-UPR ｳｴﾃｲﾁｬｸﾛｰﾗｰ		1		
26AA	0993-5522-01	SHEET ｼｰﾄ		1		
27AA	0993-5538-01	SHOULDER SCREW ﾀﾞﾝﾈｼﾞ		2		
28AA	0993-6804-01	HARNESS ﾊｰﾈｽ		1		
29AA	0993-5514-01	TERMINAL ﾀｰﾐﾅﾙ		1		
30AA	0993-5530-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ		1		
31AA	0993-5515-01	TERMINAL ﾀｰﾐﾅﾙ		1		
32AA	0978-6701-02	THERMOSTAT ｻｰﾓｽﾀｯﾄ	(TS1)	1		
33AA	0993-5519-01	COVER-RT ﾐｷﾞｶﾊﾞｰ		1		
34AA	0993-5550-01	SHEET ｼｰﾄ		1		
35AA	0993-5513-01	TERMINAL ﾀｰﾐﾅﾙ		1		
36AA	0993-5507-02	HOLDER ﾎﾙﾀﾞｰ		1		
37AA	0993-5536-01	REINFORCE PLATE ﾎｷｮｳﾊﾞﾝ		1		
38AA	0993-5523-01	TENSION SPRING ﾋｯﾊﾟﾘｽﾌﾟﾘﾝｸﾞ		6		
39AA	0993-5518-01	SEPARATOR ﾌﾞﾝﾘﾂﾞﾒ		6		
40AA	0957-5527-02	SEPARATOR ROLL ﾌﾞﾝﾘﾛｰﾙ		6		
41AA	0993-5542-02	STOPPER ｽﾄｯﾊﾟｰ		6		

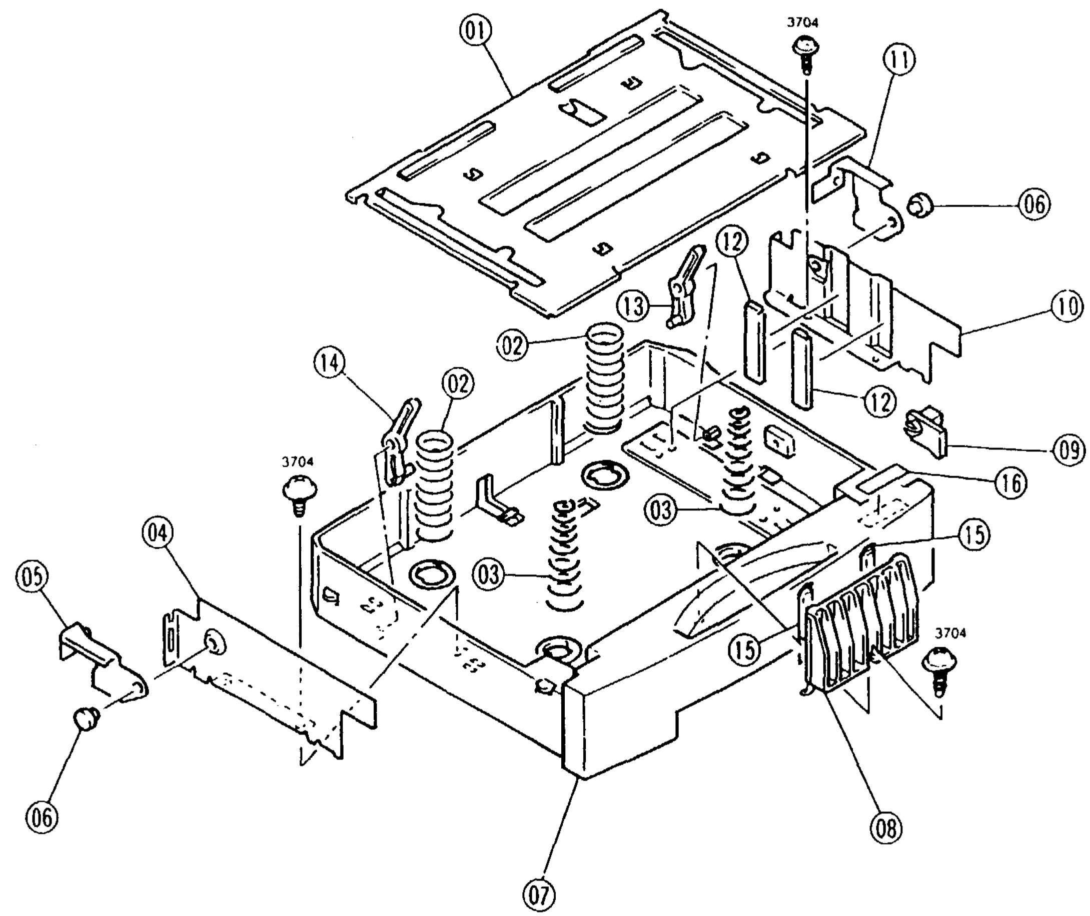

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01AA	4156-3921-01	COVER-RT ﾐｷﾞｶﾊﾞｰ	1								
02AA	4156-3907-02	PAWL ﾂﾒ	1								
03AA	4156-3903-04	GUIDE-RT ﾐｷﾞｶﾞｲﾄﾞ	1								
04AA	4156-3916-01	REGULATOR ｷｾｲｻﾞｲ	2								
05AA	4156-3917-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ	2								
06AA	4156-0751-01	LIFTING PLATE ｵｼｱｹﾞﾊﾞﾝ	1								
07AA	4156-3904-03	GUIDE-LFT ﾋﾀﾞﾘｶﾞｲﾄﾞ	1								
08AA	4156-3908-02	PAWL ﾂﾒ	1								
09AA	4156-3919-01	COVER-LFT ﾋﾀﾞﾘｶﾊﾞｰ	1								
10AA	4156-3901-03	CASSETTE BODY ｶｾｯﾄﾎﾞﾃﾞｨ	1								
11AA	4156-3920-02	GROUND PLATE ｱｰｽﾊﾞﾝ	1								
12AA	4156-3913-01	GEAR 14T ｷﾞｱｰ	1								
13AA	4156-3909-01	RACK GEAR ﾗｯｸｷﾞｱｰ	2								
14AA	4156-3910-02	DETECTING PLATE ｹﾝｼｭﾂﾊﾞﾝ	1								
15AA	4156-3915-01	COVER ｶﾊﾞｰ	1								
16AA	4156-3914-01	LID ﾌﾀ	1								
17AA	4156-3911-01	RACK GEAR ﾗｯｸｷﾞｱｰ	1								
18AA	4156-3918-03	COVER ｶﾊﾞｰ	1								
19AA	4156-3912-01	REGULATING PLATE ｷｾｲﾊﾞﾝ	1								
20AA	4156-3906-03	LOCK LEVER ﾛｯｸﾚﾊﾞｰ	2								
21AA	4156-3922-01	REGULATOR ｷｾｲｻﾞｲ	2								
22AA	4156-7301-01	LABEL ﾗﾍﾞﾙ	1								

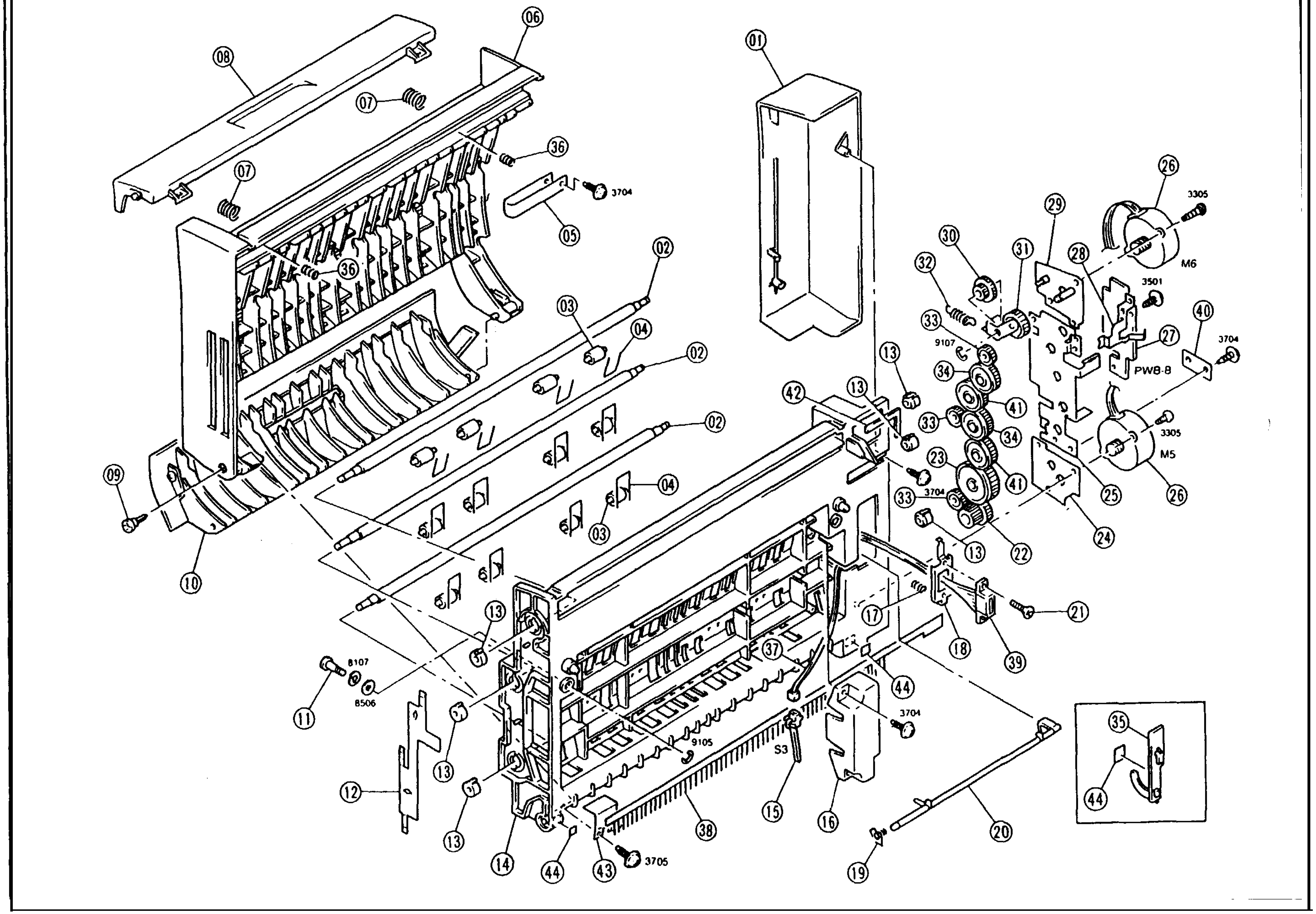

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INDEX 表示番号	PART NO. 部品番号	PART NAME 部品名称	QTY 員数	AREA 地域	REMARKS 備考
01AA	4156-3921-01	COVER-RT ミギカバー	1		
02AA	4156-3907-02	PAWL ツメ	1		
03AA	4156-3903-04	GUIDE-RT ミギガイド	1		
04AA	4156-3916-01	REGULATOR キセイザイ	2		
05AA	4156-3917-01	PRESSURE SPRING アッシュクスプリング	2		
06AA	4156-0751-01	LIFTING PLATE オシアゲバン	1		
07AA	4156-3904-03	GUIDE-LFT ヒダリガイド	1		
08AA	4156-3908-02	PAWL ツメ	1		
09AA	4156-3919-01	COVER-LFT ヒダリカバー	1		
10AA	4156-3901-03	CASSETTE BODY カセットボディ	1		
11AA	4156-3920-02	GROUND PLATE アースバン	1		
12AA	4156-3913-01	GEAR 14T ギアー	1		
13AA	4156-3909-01	RACK GEAR ラックギアー	2		
14AA	4156-3910-02	DETECTING PLATE ケンシュツバン	1		
15AA	4156-3915-01	COVER カバー	1		
16AA	4156-3914-01	LID フタ	1		
17AA	4156-3911-01	RACK GEAR ラックギアー	1		
18AA	4156-3918-0[illegible]	COVER カバー	1		
19AA	4156-3912-01	REGULATING PLATE キセイバン	1		
20AA	4156-3906-03	LOCK LEVER ロックレバー	2		
21AA	4156-3922-01	REGULATOR キセイザイ	2		
22AA	4156-7301-01	LABEL ラベル	1		

INDEX 表示番号	PART NO. 部品番号	PART NAME 部品名称	QTY 員数	AREA 地域	REMARKS 備考

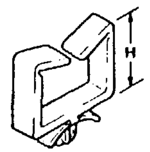

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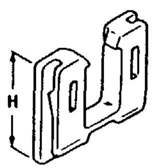
INDEX 表示番号	PART NO. 部品番号	PART NAME 部品名称	QTY 員数	AREA 地域	REMARKS 備考	INDEX 表示番号	PART NO. 部品番号	PART NAME 部品名称	QTY 員数	AREA 地域	REMARKS 備考
01AA	4156-0752-01	LIFTING PLATE ｵｼｱｹﾞﾊﾞﾝ	1								
02AA	0933-3907-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ	2								
03AA	4156-3714-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ	2								
04AA	4156-3704-01	REGULATING PLATE ｷｾｲﾊﾞﾝ	1								
05AA	4156-3708-02	PAWL ﾂﾒ	1								
06AA	4156-3706-01	STOPPER ｽﾄｯﾊﾟｰ	2								
07AA	4156-3701-04	CASSETTE BODY ｶｾｯﾄﾎﾞﾃﾞｨ	1								
08AA	4156-3709-02	REGULATING PLATE ｷｾｲﾊﾞﾝ	1								
09AA	4156-3710-02	DETECTING PLATE ｹﾝｼｭﾂﾊﾞﾝ	1								
10AA	4156-3703-01	REGULATING PLATE ｷｾｲﾊﾞﾝ	1								
11AA	4156-3707-02	PAWL ﾂﾒ	1								
12AA	4156-3722-01	GUIDE ｶﾞｲﾄﾞ	2								
13AA	4156-3712-02	LOCK LEVER ﾛｯｸﾚﾊﾞｰ	1								
14AA	4156-3713-02	LOCK LEVER ﾛｯｸﾚﾊﾞｰ	1								
15AA	4156-3715-01	REGULATOR ｷｾｲｻﾞｲ	2								
16AA	4156-7302-01	LABEL ﾗﾍﾞﾙ	1								

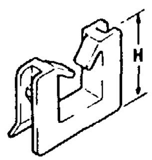

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01AA	4157-3604-03	COVER ｶﾊﾞｰ	1		
02AA	4157-3611-02	ROLLER ﾛｰﾗｰ	3		
03AA	4157-3614-01	ROLL ﾛｰﾙ	12		
04AA	4157-3612-01	SPRING ｽﾌﾟﾘﾝｸﾞ	12		
05AA	4157-3609-02	STOPPER ｽﾄｯﾊﾟｰ	1		
06AA	4157-3602-01	COVER ｶﾊﾞｰ	1		
07AA	4157-3606-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ	2		
08AA	2157-3605-02	COVER ｶﾊﾞｰ	1		
09AA	4157-3615-01	SHOULDER SCREW ｸﾞﾝﾈｼﾞ	2		
10AA	4157-3603-03	COVER ｶﾊﾞｰ	1		
11AA	4157-3608-01	SHOULDER SCREW ｸﾞﾝﾈｼﾞ	2		
12AA	4157-3634-01	GROUND PLATE ｱｰｽﾊﾞﾝ	1		
13AA	4157-3613-02	BUSHING ｼﾞｸｳｹ	6		
14AA	4157-3601-02	BASE ﾍﾞｰｽ	1		
15AA	4157-6301-01	SWITCH (S3 ｽｲｯﾁ	1		
16AA	4157-3607-01	COVER ｶﾊﾞｰ	1		
17AA	4157-3619-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ	1		
18AA	4157-3638-01	BRACKET ﾄﾘﾂｹﾊﾞﾝ	1		
19AA	4157-3633-02	TORSION SPRING ﾈｼﾞﾘｽﾌﾟﾘﾝｸﾞ	1		
20AA	4157-3632-01	ACTUATOR ｱｸﾁｪｰﾀｰ	1		
21AA	0928-1018-01	SHOULDER SCREW ｸﾞﾝﾈｼﾞ	2		
22AA	4157-3622-01	GEAR 20/43T ｷﾞｱｰ	1		
23AA	4157-3627-01	GEAR 46T ｷﾞｱｰ	1		
24AA	4157-3636-02	HEAT-SINK ﾎｳﾈﾂﾊﾞﾝ	1		
25AA	4157-3631-01	BEAT-SINK ﾎｳﾈﾂﾊﾞﾝ	1		
26AA	4157-6101-01	MOTOR (M5/6 ﾓｰﾀｰ	2		
27AA	4157-0101-02	PW BOARD-B(WITH IC) (PUB-8 ﾌﾟﾘﾝﾄｷﾊﾞﾝ 8	1		
28AA	4157-3635-02	GROUND PLATE ｱｰｽﾊﾞﾝ	1		
29AA	4157-0201-01	HEAT-SINK ﾎｳﾈﾂﾊﾞﾝ	1		
30AA	4157-3625-01	GEAR 11/38T ｷﾞｱｰ	1		
31AA	4157-0202-01	GEAR 22T ｷﾞｱｰ	1		
32AA	4157-3628-02	TENSION SPRING ﾋｯﾊﾟﾘｽﾌﾟﾘﾝｸﾞ	1		
33AA	4157-3621-01	GEAR 20T ｷﾞｱｰ	3		

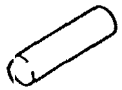
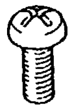
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34AA	4157-3623-01	GEAR 37T ｷﾞｱｰ	2		
35AA	4157-3641-01	HOOK ﾌｯｸ	2		
36AA	4157-3610-01	PRESSURE SPRING ｱｯｼｭｸｽﾌﾟﾘﾝｸﾞ	2		
37AA	4157-6802-01	HARNESS ﾊｰﾈｽ	1		
38AA	4157-3618-01	NEUTRALIZING BRUSH ESｸﾘｰﾅｰ	1		
39AA	4157-6803-02	HARNESS ﾊｰﾈｽ	1		
40AA	4157-3617-01	BRACKET ﾄﾘﾂｹﾊﾞﾝ	1		
41AA	4157-3620-01	GEAR 37T ｷﾞｱｰ	2		
42AA	4157-3640-01	SEAL ｼｰﾙ	1		
43AA	4157-3616-01	GROUND PLATE ｱｰｽﾊﾞﾝ	1		
44AA	0807-7121-01	LABEL ﾗﾍﾞﾙ	4		

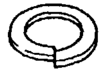
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02BA	9384-1310-81	WIRING SADDLE 6.4H ワイヤーサドル	17		
02CA	9384-1900-64	WIRING SADDLE 13.0H ワイヤーサドル	2		
02DA	9384-1900-65	WIRING SADDLE 18.0H ワイヤーサドル	3		
03AA	9384-2600-11	EDGE COVER 26H エッジカバー	1		
04AA	9384-2800-36	EDGE COVER 15H エッジカバー	4		
04BA	9384-2010-21	EDGE COVER 8.5H エッジカバー	1		

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0508	9752-2010-50	PIN ピン	
1124	9642-0408-21	SCREW コネジ	
1305 1308 1312 1318	9646-0306-13 9646-0308-13 9646-0316-13 9646-0408-13	SCREW コネジ	
3305	9732-0308-13	TAPPING SCREW タッピングネジ	
3405 3410 3435	9733-0310-13 9733-0408-13 9733-0330-13	TAPPING SCREW タッピングネジ	
3501 3504 3505 3508 3519 3542	9735-0306-13 9735-0308-13 9735-0310-13 9735-0408-13 9735-0312-13 9735-0320-13	TAPPING SCREW. タッピングネジ	
3704 3705 3709	9739-0308-13 9739-0306-13 9739-0310-13	TAPPING SCREW タッピングネジ	

INDEX 表示番号	PART NO. 部品番号	PART NAME 部品名称	ILLUST 図
8101	9710-0400-13	SPRING WASHER スプリングワッシャー	
8302	9712-0400-13	WASHER ワッシャー	
8504	9716-0400-01	WASHER ワッシャー	
9102 910s 9107 910'1 9112	9721-0200-01 9721-0300-01 9721-0400-01 9721-0500-01 9721-0600-01	RETAINING RING Eリング	

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0807-7121-01	11	44AA	4
0928-1018-01	11	21AA	2
0928-3017-02	08	22AA	1
0928-3018-12	08	20AA	1
0933-0151-01	08	15AA	3
0933-3834-02	08	21AA	1
0933-3839-02	08	06AA	2
0933-3840-02	08	03AA	2
0933-3907-01	10	02AA	2
0953-7409-01	06	30AA	1
0957-2320-01	03	02AA	1
0957-3015-01	04	25AA	1
0957-3040-01	04	17AA	2
0957-3104-01	03	26AA	1
0957-5527-02	07	40AA	6
0972-5519-01	07	15AA	1
0978-2067-01	02	17AA	2
0978-2067-01	08	30AA	2
0978-6701-02	07	32AA	1
0993-0105-01	07	09AA	1
0993-0107-01	06	14AA	1
0993-0109-02	02	21AA	1
0993-0110-02	03	33AA	1
0993-0111-02	03	33BA	1
0993-0151-01	05	25AA	1
0993-0201-01	05	24AA	1
0993-0202-01	05	20AA	1
0993-0203-13	03	13AA	1
0993-0331-04	06	01AA	1
0993-0341-06	07	01AA	1
0993-0343-04	07	01BA	1
0993-0345-04	07	01CA	1
0993-0361-02	03	37AA	1
0993-0401-02	04	34AA	1
0993-0411-01	04	33AA	1
0993-0534-03	06	10AA	1
0993-0751-01	04	31AA	1
0993-0752-01	03	24AA	1
0993-0754-01	01	35AA	1
0993-0755-02	03	36AA	1
0993-1001-02	01	01AA	1
0993-1002-02	01	22AA	1
0993-1003-01	01	11AA	1
0993-1004-03	01	19AA	1
0993-1005-01	01	20AA	1
0993-1006-01	01	26AA	1
0993-1009-01	01	21AA	1
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0993-1014-01	01	13AA	2
0993-1015-01	01	07AA	1
0993-1016-02	01	16AA	1
0993-1017-01	02	01AA	1
0993-1021-01	01	18AA	1
0993-1620-02	01	12AA	1
0993-2001-02	02	16AA	1
0993-2002-01	02	19AA	1
0993-2003-02	02	13AA	1
0993-2004-02	02	02AA	1
0993-2005-01	03	14AA	1
0993-2009-01	01	17AA	1
0993-2012-01	02	07AA	1
0993-2013-01	02	08AA	1
0993-2014-01	02	09AA	1
0993-2015-02	02	11AA	1
0993-2016-01	02	10AA	1
0993-2017-01	01	15AA	1
0993-2018-01	06	11AA	1
0993-2020-02	03	22AA	1
0993-2021-01	03	16AA	1

PART NO. 部品番号	FIG. 図番	INDEX 表示番号	QTY 員数
0993-2022-01	03	15AA	1
0993-2023-01	03	19AA	1
0993-2024-01	03	17AA	1
0993-2025-01	03	18AA	1
0993-2026-01	03	21AA	1
0993-2026-01	05	26AA	1
0993-2030-01	06	16AA	1
0993-2033-01	06	17AA	1
0993-2034-02	03	20AA	1
0993-2035-01	05	27AA	1
0993-2038-01	06	09AA	1
0993-2040-01	05	28AA	1
0993-2041-01	06	13AA	3
0993-2042-02	02	24AA	1
0993-2043-02	02	26AA	1
0993-2044-01	02	25AA	1
0993-2304-01	01	23AA	1
0993-2308-01	06	33AA	1
0993-2309-01	06	32AA	1
0993-2501-13	05	17AA	1
0993-2503-01	05	08AA	1
0993-2504-01	05	14AA	1
0993-2505-01	05	15AA	1
0993-2506-01	05	07AA	1
0993-2507-01	05	19AA	1
0993-2508-01	05	06AA	1
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0993-2511-01	05	10AA	1
0993-2512-01	05	13AA	1
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0993-2519-01	05	05AA	1
0993-2521-01	05	02AA	1
0993-2523-01	05	01AA	1
0993-2524-01	05	16AA	1
0993-2525-01	03	07AA	1
0993-2529-01	05	03AA	1
0993-2530-01	03	34AA	1
0993-2531-02	03	04AA	1
0993-2533-01	03	03AA	1
0993-2536-01	05	21AA	1
0993-2537-01	03	10AA	1
0993-2538-01	03	09AA	1
0993-2539-01	03	12AA	1
0993-2540-01	03	11AA	1
0993-2601-02	02	22AA	1
0993-2602-02	02	23AA	1
0993-2606-01	02	27AA	1
0993-2607-01	02	28AA	1
0993-2608-02	03	42AA	1
0993-2930-03	06	18AA	1
0993-3001-01	04	22AA	1
0993-3002-01	04	13AA	1
0993-3003-03	03	27AA	1
0993-3006-01	04	19AA	2
0993-3008-01	04	18AA	2
0993-3009-01	04	15AA	2
0993-3010-01	04	23AA	1
0993-3013-01	04	28AA	1
0993-3014-02	04	27AA	1
0993-3016-01	03	23AA	1
0993-3017-02	04	30AA	1
0993-3018-01	04	11AA	1
0993-3020-02	04	20AA	1
0993-3021-02	04	29AA	1
0993-3022-01	04	26AA	1

PART NO. 部品番号	FIG. 図番	INDEX 表示番号	QTY 員数
0993-3023-01	04	12AA	1
0993-3024-01	04	16AA	1
0993-3027-01	06	15AA	1
0993-3028-02	04	14AA	1
0993-3029-02	03	31AA	1
0993-3030-02	03	28AA	1
0993-3032-01	03	30AA	1
0993-3033-01	03	29AA	1
0993-3035-01	04	10AA	1
0993-3036-02	03	25AA	2
0993-3039-01	04	24AA	1
0993-3203-01	01	09AA	1
0993-3204-01	01	10AA	2
0993-3205-01	01	30AA	1
0993-3206-01	01	32AA	1
0993-3208-01	01	27AA	1
0993-3209-01	01	28AA	1
0993-3210-01	01	29AA	1
0993-3211-01	01	31AA	1
0993-3213-01	01	08AA	1
0993-3214-01	01	06AA	1
0993-3216-02	07	02AA	1
0993-3220-01	01	03AA	4
0993-3221-01	01	04AA	4
0993-3222-01	01	02AA	1
0993-3501-05	04	21AA	1
0993-3502-01	06	08AA	1
0993-3503-01	04	09AA	1
0993-3504-01	04	06AA	1
0993-3505-02	06	23AA	1
0993-3506-01	06	22AA	1
0993-3507-01	06	24AA	1
0993-3508-01	04	05AA	1
0993-3509-01	04	07AA	1
0993-3510-01	04	01AA	1
0993-3511-01	04	04AA	2
0993-3512-01	04	08AA	1
0993-3513-01	06	03AA	1
0993-3514-01	06	04AA	1
0993-3515-01	06	05AA	1
0993-3516-01	06	06AA	1
0993-3517-01	06	07AA	1
0993-3518-01	04	03AA	2
0993-3520-01	04	02AA	2
0993-3521-01	04	32AA	5
0993-3523-01	04	36AA	1
0993-3524-01	06	34AA	1
0993-4111-01	06	20AA	1
0993-4115-01	06	21AA	1
0993-5501-01	07	25AA	1
0993-5502-01	07	21AA	1
0993-5504-01	07	22AA	1
0993-5505-15	07	16AA	1
0993-5507-02	07	36AA	1
0993-5512-01	07	05AA	1
0993-5513-01	07	35AA	1
0993-5514-01	07	29AA	1
0993-5515-01	07	31AA	1
0993-5516-01	07	14AA	1
0993-5518-01	07	39AA	6
0993-5519-01	07	33AA	1
0993-5520-01	07	19AA	1
0993-5521-01	07	17AA	2
0993-5522-01	07	26AA	1
0993-5523-01	07	38AA	6
0993-5524-01	07	08AA	2
0993-5529-01	07	04AA	2
0993-5530-01	07	30AA	1
0993-5532-01	07	11AA	1
0993-5533-01	07	07AA	1

PART NO. 部品番号	FIG. 図番	INDEX 表示番号	QTY 員数
0993-5534-01	07	20AA	1
0993-5535-01	07	18AA	2
0993-5536-01	07	37AA	1
0993-5537-01	07	06AA	1
0993-5538-01	07	27AA	2
0993-5542-02	07	41AA	6
0993-5543-01	07	10AA	1
0993-5550-01	07	34AA	1
0993-6101-01	05	23AA	1
0993-6103-01	02	15AA	1
0993-6104-01	02	03AA	1
0993-6201-01	06	12AA	1
0993-6202-01	06	12BA	1
0993-6203-01	06	02AA	1
0993-6204-01	05	22AA	1
0993-6205-01	05	12AA	1
0993-6301-01	02	12AA	1
0993-6501-01	07	24AA	1
0993-6502-01	07	24BA	1
0993-6503-01	07	24CA	1
0993-6702-01	07	23AA	1
0993-6801-01	02	06AA	1
0993-6802-02	02	14AA	1
0993-6804-01	07	28AA	1
0993-6805-02	03	32AA	1
0993-6809-01	07	12AA	1
0993-6817-01	06	25AA	1
0993-6818-01	03	35AA	1
0993-6823-01	01	37AA	1
0993-6824-01	02	18AA	1
0993-6825-01	05	29AA	1
0993-6826-01	06	28AA	1
1052-7257-01	03	41AA	1
1052-7257-01	05	31AA	1
1100-1212-04	01	33AA	1
1200-1521-02	01	14AA	3
1200-1521-02	02	20AA	1
4156-0101-02	08	19AA	1
4156-0201-01	08	17AA	1
4156-0202-01	08	17BA	1
4156-0751-01	09	06AA	1
4156-0752-01	10	01AA	1
4156-3701-04	10	07AA	1
4156-3703-01	10	10AA	1
4156-3704-01	10	04AA	1
4156-3706-01	10	06AA	2
4156-3707-02	10	11AA	1
4156-3708-02	10	05AA	1
4156-3709-02	10	08AA	1
4156-3710-02	10	09AA	1
4156-3712-02	10	13AA	1
4156-3713-02	10	14AA	1
4156-3714-01	10	03AA	2
4156-3715-01	10	15AA	2
4156-3722-01	10	12AA	2
4156-3801-03	08	01AA	1
4156-3802-01	08	10AA	1
4156-3803-02	08	13AA	1
4156-3804-02	08	12AA	1
4156-3805-02	08	02AA	1
4156-3806-01	08	08AA	1
4156-3807-12	08	05AA	1
4156-3808-02	08	04AA	1
4156-3810-01	08	11AA	1
4156-3813-01	08	28AA	1
4156-3814-01	08	23AA	1
4156-3815-01	08	26AA	1
4156-3817-12	08	18AA	2
4156-3818-01	08	25AA	3
4156-3820-01	08	07AA	1

PART NO. 部品番号	FIG. 図番	INDEX 表示番号	QTY 員数
4156-3823-01	08	24AA	1
4156-3825-01	08	14AA	2
4156-3826-01	08	09AA	4
4156-3828-01	08	31AA	1
4156-3830-01	08	36AA	4
4156-3831-01	08	37AA	1
4156-3834-01	08	40AA	2
4156-3838-01	08	29AA	2
4156-3901-03	09	10AA	1
4156-3903-04	09	03AA	1
4156-3904-03	09	07AA	1
4156-3906-03	09	20AA	2
4156-3907-02	09	02AA	1
4156-3908-02	09	08AA	1
4156-3909-01	09	13AA	2
4156-3910-02	09	14AA	1
4156-3911-01	09	17AA	1
4156-3912-01	09	19AA	1
4156-3913-01	09	12AA	1
4156-3914-01	09	16AA	1
4156-3915-01	09	15AA	1
4156-3916-01	09	04AA	2
4156-3917-01	09	05AA	2
4156-3918-03	09	18AA	1
4156-3919-01	09	09AA	1
4156-3920-02	09	11AA	1
4156-3921-01	09	01AA	1
4156-3922-01	09	21AA	2
4156-6801-01	08	32AA	1
4156-7301-01	09	22AA	1
4156-7302-01	10	16AA	1
4157-0101-02	11	27AA	1
4157-0201-01	11	29AA	1
4157-0202-01	11	31AA	1
4157-3601-02	11	14AA	1
4157-3602-01	11	06AA	1
4157-3603-03	11	10AA	1
4157-3604-03	11	01AA	1
4157-3605-02	11	08AA	1
4157-3606-01	11	07AA	2
4157-3607-01	11	16AA	1
4157-3608-01	11	11AA	2
4157-3609-02	11	05AA	1
4157-3610-01	11	36AA	2
4157-3611-02	11	02AA	3
4157-3612-01	11	04AA	12
4157-3613-02	11	13AA	6
4157-3614-01	11	03AA	12
4157-3615-01	03	38AA	1
4157-3615-01	11	09AA	2
4157-3616-01	11	43AA	1
4157-3617-01	11	40AA	1
4157-3618-01	11	38AA	1
4157-3619-01	11	17AA	1
4157-3620-01	11	41AA	2
4157-3621-01	11	33AA	3
4157-3622-01	11	22AA	1
4157-3623-01	11	34AA	2
4157-3625-01	11	30AA	1
4157-3627-01	11	23AA	1
4157-3628-02	11	32AA	1
4157-3631-01	11	25AA	1
4157-3632-01	11	20AA	1
4157-3633-02	11	19AA	1
4157-3634-01	11	12AA	1
4157-3635-02	11	28AA	1
4157-3636-02	11	24AA	1
4157-3638-01	11	18AA	1
4157-3640-01	11	42AA	1
4157-3641-01	11	35AA	2

PART NO. 部品番号	FIG. 図番	INDEX 表示番号	QTY 員数
4157-6101-01	11	26AA	2
4157-6301-01	11	15AA	1
4157-6802-01	11	37AA	1
4157-6803-02	11	39AA	1
9321-2310-32	08	27AA	1
9331-2310-21	03	01AA	1
9335-1410-31	06	19AA	1
9335-1410-31	07	13AA	1
9381-4310-31	02	04BA	1
9381-4310-71	02	04CA	1
9381-4510-11	02	04AA	1
9383-5920-13	02	05AA	1
9384-1310-81	12	02BA	17
9384-1900-64	12	02CA	2
9384-1900-65	12	02DA	3
9384-2010-21	12	04BA	1
9384-2600-11	12	03AA	1
9384-2800-36	12	04AA	4